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THE SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

RETROSPECT AND PROSPECT *

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The American Proctologic Society was formed in Columbus, Ohio, in 1899, with twelve charter members. It has maintained its position and regularity of meetings with success and benefit since that time. Prominent among the charter members will be found such names as Matthews, Tuttle, Pennington, Cooke, Adler, Beach, Evans and Earle. To this original coterie of men many honorable and conscientious workers have since been added.

The American Gastro-Enterological Association was formed about the same time. This association has maintained a regularity of meetings and position since the year 1897. Prominent among the founders were such men as Aaron of Detroit, Benedict of Buffalo, Einhorn of New York, Hemmeter of Baltimore and Stewart of Philadelphia. Dr. Stewart was elected first president, and Dr. Aaron was the first secretary, which office he held continuously for fourteen years. To these pioneers many have been added, so that this association is quite representative. Among these I gladly mention some of the ex-presidents and others of prominence well representing the type of men who now compose that organization: Stewart, Meltzer, Bettmann, Friedenwald, Cannon, Sawyer, Kauffmann, Stockton, Morgan, White, Jones, Lockwood, Bloodgood, Finney, Meyer and Bassler; and many others deserve to be mentioned.

Samuel J. Meltzer of New York was president in 1904 and 1905, and his two presidential addresses on the subjects, respectively, "Our Aims" and "The Men We Lost" were instrumental as introspective agents in building the society up to the splendid organization that it finally came to be. One of the best things that Dr. Meltzer ever did for the benefit of the association was to create a committee on admission whose duties consisted in investigating and scrutinizing the moral and scientific standing of each applicant.

As time went on, the course of events proved that societies of specialists, while pleasurable to their own members, did not offer much for the advance of their subjects to the rank and file of the profession. To meet as a small body, one specialist reading a paper to others, served a very minimum benefit, because, first, the good that such a society could bring about was limited, and secondly, it could not fulfil a service or play a large part in correcting the lack of knowledge in others owing to deficient experience, limited opportunities, and the lack of special courses of instruction in gastro-enterology and proctology in most of the medical colleges in this country.

The mutations of time have changed the status and practice of gastro-enterology and proctology from a condition of well-merited criticism to one of honor and distinction, and it is for this reason that the American Medical Association established a section recognizing these two fields of work. In its establishment there were only two dissenting votes, and we wish to extend our thanks to the House of Delegates of the American Medical Association for its considerate and complete action. It is now for us to justify their faith by showing superior quality of work in this section, which I am sure will be done. There have been pathfinders in the past, and we are the founders or establishers of the advancement today. I predict that this section will be second to none in point of importance and attendance, and that eventually it will be the second medical section in point of interest.

There is no one thing that at a stroke has done more to remove these fields from the hands of quacks, commercialists and the reproach of the past than the establishment of this section. Having been given the responsibility, and no responsibility comes without obligation, we accept both and intend to do our part, for we know that what we do will be broadly spread before the profession, and we are willing to be judged accordingly. We further recognize that all beginnings are difficult, and that the success of this section depends on our own exertions and the good will of all.

We hope that gastro-enterology and proctology will be especially taught in our medical schools, that the students of the future will at least have such fundamental knowledge of these fields that the public will be benefited thereby, and that when any member desires further knowledge, this section will be the annual mouthpiece to teach the things that should be known.

We hope our meetings will stimulate additional research, because there is much to be done. In the endeavor to be fair to both gastro-enterology and proctology, and considering our future section work as a whole, the following subjects are suggested for elucidation. There is much still to be learned about the effects of pyorrhea on the gastro-intestinal tract. Research work in connection with saliva has been neglected of late years. Should there not be a rearrangement of the classification of gastric conditions? What is the true etiology of gastroduodenal ulcer? Why is the stomach more often affected by cancer than any other internal organ? Do we know all we should about so-called precancerous lesions? Is the medical treatment of stomach and intestinal conditions known and

* Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

undertaken by the rank and file of the profession as it should be?

There is much of gallbladder pathology yet to be learned. Intestinal stasis is still being debated, pro and con, both as to its etiology and as to the proper treatment. What about bacterial flora in connection with intestinal toxemia? What is the cause of many chronic colonic conditions, to which likewise may be added changes in the mucous membrane of the rectum? Is the treatment of hemorrhoids a medical or a surgical question, and to what extent? What is the best service we can render in the treatment of the colon and rectum? What are we doing with pruritus ani, vulvae and scroti? There are also the roentgen-ray and the laboratory sides; abdominal conditions accompanying diseases of other organs, and so on almost ad infinitum.

It seems to me that during our discussion of the symposiums much can be said that would be of great benefit to the military service and the life of the boys in the Army as to the care of their digestive and eliminative tracts. Advice along this line could come from no more competent body of medical men than are in this section of the American Medical Association, and I believe it would be pertinent, notwithstanding the fact that we shall have many good physicians as officers of the Army, and without doubt they would welcome such advice. Nothing could make for greater efficiency in our Army than the keeping of the gastro-enterocolonic tract in a normal condition. Possibly the offering of such advice at the present time may be too late, but I would recommend the appointment of a committee of five to formulate rules for the care of the gastro-intestinal tract. Such committee should deal especially with nutrition and elimination, and submit its report to the general committee of national defense, if it is found that the medical advisory board would welcome such advice, with the recommendation that a copy be placed in the hands of every soldier or his medical officer.

We have much to do in the line of research work, as well as considerable work of instruction. While congratulating ourselves on the formation of this section, let us enter into its future with a spirit that will bring the greatest good to the greatest number.

Controlling Malaria.—In cooperation with the U. S. Public Health Service, under the general supervision of the late Dr. R. E. von Ezdorf and his assistants, an experiment was conducted by the International Health Board of the Rockefeller Foundation at Crossett, Arkansas, in the practical control of malaria. The experiment was based on mosquito control without major drainage operations. It consisted of draining and regrading of natural streams so as to secure rapid offflow, the filling of bottoms, the digging of ditches, the removal of accumulated vegetation and the systematic use of oil and other larva-killing substances. As an indication of the results of these experiments, during the last six months of 1915 there had been 2,100 malaria calls on physicians in Crossett; during the last six months of 1916, there were 310 calls. In October, 1915, there were 600 calls; in October, 1916, there were 46 calls. In December, 1915, there were 100 calls; in December, 1916, only 4 calls. In Lake Village, 103 homes on plantations in the vicinity of the town were selected and divided into four groups to which different methods of prevention were applied. In the first group, control was based on screening; in the second, on prophylactic doses of quinin; in the third, on a combination of the two measures; a fourth group was kept under observation as a negative control without the use of any measures. The experiment has been completed but the results have not yet been announced.

"TRUTH ABOUT INTRASPINAL INJECTIONS IN TREATMENT OF SYPHILIS OF NERVOUS SYSTEM"

A REPLY

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An address by the chairman of the Section on Nervous and Mental Diseases, Dr. Bernard Sachs,[1] was read at the Sixty-Eighth Annual Session of the American Medical Association entitled "Truth About Intraspinal Injections in Treatment of Syphilis of the Nervous System."

If the statements contained in that article are accepted by the medical profession as a final and correct judgment of this new therapeutic procedure, an enormous amount of harm will result in that numerous victims of syphilis of the nervous system will be deprived of their only chance to regain health and economic efficiency. The attempt to discredit the value of serologic examination of the spinal fluid as a diagnostic procedure and guide to treatment should not be permitted to gain credence without a word of protest. In the address in question there are several statements that are entirely at variance with the experience of my colleagues and myself, who have employed the method over a period of years in the manner we consider technically correct. We have seen numerous patients, treated for months intensively by salvarsan given intravenously with little or no clinical improvement, entirely relieved of tabetic pains, crises, bladder symptoms and sexual impotence, and with a marked improvement in their ataxic gait after the institution of intraspinal treatment. The following clinical histories and serologic findings illustrate the contention that intraspinal treatment can and does accomplish much more than the intravenous method.

REPORT OF CASES

CASE 1.—A man, aged 40, with tabes, who had had a chancre eight years previously, for one year had suffered from lancinating, neuralgic pains in the legs, girdle sensation, very marked ataxia, and inability to walk farther than a city block. He was intolerant to mercury, and numerous intravenous injections of salvarsan over a period of six months produced no effect whatever. His fluid findings after intravenous treatment were: cells, 46; globulin, + + + +; Wassermann test, + + + + to 0.2 c.c.; the blood was + + + +. He then received twenty intraspinal injections. The leg and girdle pains entirely disappeared; the bladder is normal, and the sexual power has improved. He has gained 50 pounds in weight, and is able to walk 4 or 5 miles without assistance or fatigue. For three years he has been back at his work. The serologic findings in the fluid and blood became negative after the sixteenth treatment, and have remained negative for two and a half years. The patient has had no clinical relapse.

CASE 2.—A man, aged 43, with tabes, had had a chancre in 1899. For four years he had shooting pains in the upper part of the back and thighs, at times so severe that he was obliged to remain in bed for from one to three days. There were Argyll Robertson pupils; the knee and ankle jerks were absent; the reflexes of the upper extremity were sluggish, the right more so than the left; there was slight ataxia; the bladder was a little slow; there was an area of anesthesia over the left breast just below the nipple. The patient was

1. Sachs, Bernard: Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System, THE JOURNAL A. M. A., Sept. 1, 1917, p. 681.

nervous and irritable, and suffered from such profound mental depression that his business judgment and activity were markedly impaired. Before coming to New York he was intensively treated with salvarsan and mercury, with no abatement in the pains or other symptoms. The fluid findings when he first came under observation were: cells, 234; globulin, ++++; Wassermann test, ++++ to 0.4 c.c.; colloidal gold test, 2332110000; serum, —. He received fourteen intravenous and fourteen intraspinal injections, which treatment has been followed by a complete disappearance of the pains, ataxia and bladder trouble. The patient's depression has entirely lifted, he has returned to his business with renewed interest and vigor, and he is able to carry through large enterprises with his former energy. He has gained 25 pounds in weight. His fluid findings have just become negative, eight months after the beginning of treatment.

CASE 3.—A man, aged 24, with tabes, had had a chancre six years before. For three years he had had attacks of severe shooting intermittent pains in the upper and the lower extremities and in the chest. The pupils were unequal, irregular and very sluggish to light; the upper reflexes were present and equal; the left patellar and ankle jerks were very weak. The patient's sexual power and bladder were not impaired. He had had twenty-two injections of salvarsan besides several years' treatment with mercurial inunctions and injections when he came under my care. At this time the blood was negative. A lumbar puncture revealed: cells, 34; globulin, +; Wassermann test, ++++ to 0.8 c.c.; colloidal gold test, 1123210000. After combined treatment of six intravenous and six intraspinal injections the fluid became negative. The pains for which the patient sought relief disappeared after the third intraspinal treatment.

CASE 4.—A man, aged 40, with cerebrospinal syphilis, had had a chancre in September, 1915, followed by secondaries for which he received immediately ten injections of salvarsan at weekly intervals, reinforced and followed by weekly injections of mercury over a period of nine months. In December, 1916, when he was first seen, he complained of lancinating pains all over the body, and occipital headaches. The pupils were unequal and irregular, the left sluggish to light, the right reacting promptly. The biceps, triceps, and radial reflexes were slightly more active on the right side. The knee and Achilles jerks were equal and normally active. A lumbar puncture made, Dec. 15, 1916, revealed: cells, 10; globulin, +; Wassermann test, ++++ with 1 c.c. Twenty-three intravenous injections were followed by some amelioration in the pains and headaches, but no change in the fluid other than a negative cell count. Ten intraspinal treatments brought about a complete cessation of the symptoms and a normal fluid.

CASE 5.—A man, aged 30, with cerebrospinal syphilis, had had a chancre in 1906. Six years before I saw him he had a left external strabismus and facial palsy. When first seen in January, 1916, he showed the residua of these paralyses. All the reflexes on the right side were more active than on the left; the pupils were unequal, irregular and fixed to light; the bladder and the sexual power were normal. The patient was suffering from headaches and severe pains in the lower extremities. The blood was ++++; the spinal fluid showed 148 cells; globulin, ++++; Wassermann test, ++++ to 0.8 c.c.; colloidal gold test, 1123310000. After twenty-one intravenous injections of salvarsan, besides weekly doses of mercury, the cells were reduced to 9 and the globulin to ++; the Wassermann test was unchanged; the headaches disappeared, but the leg pains remained. The patient was then placed on a course of intraspinal injections, of which fourteen were given along with fourteen more intravenous treatments. The biologic results have been completely negative for three months. The pains, which were such a refractory symptom, left the patient after the sixth intraspinal treatment, and have not recurred.

CASE 6.—A woman, aged 38, with syphilitic meningitis, gave no history of syphilis. In September, 1915, she developed symptoms of meningitis with severe occipital headaches and epileptiform seizures. The blood was ++++. She was treated intensively by her physician with salvarsan intravenously and mercury, but without amelioration in her condition. When she came under my care in March, 1916, the spinal fluid revealed: cells, 86; globulin, ++; Wassermann test, ++++ with 1.0 c.c.; colloidal gold test, 1123200000. At this time she was placed on the combined intravenous and intraspinal medication. To the first two treatments she reacted with a chill, rise of temperature, nausea and vomiting. The reactions, however, grew less after subsequent injections until she was able to take them without any after-effect. Four months from the beginning of treatment, and after the fifth injection, the Wassermann test on the fluid was negative, the cells numbered 17, and the globulin was +. The patient received three more intraspinal injections, after which only a trace of globulin persisted. The headaches disappeared entirely after the second injection, she was able to resume her family and social activities, and her whole physical condition improved markedly; her weight, which had been down to 89 pounds, increased to 100 pounds. Slight epileptiform attacks recurred at rare intervals for eight months and then left her free. A lumbar puncture, made July 11, 1917, revealed: cells, 3; globulin, very faint trace; Wassermann test, negative; colloidal gold test, negative. The blood was negative. In all she had eight intravenous and eight intraspinal injections.

It does not require the experience of a trained neurologist to convince these patients that their condition has been changed from hopeless invalidism to comparative good health. The advocates of intraspinal therapy have never claimed for the method that it should be used to the exclusion of the intravenous method, nor have they claimed that the choroid plexus is impermeable in all cases, and that remedies introduced intravenously could not reach the cerebral or spinal tissues. On the contrary, it has been repeatedly stated that many cases of syphilis of the nervous system are favorably influenced or cured by this method. In support of this statement I have cited cases in which such results were obtained, and again to emphasize the fact record the following:

CASE 7.—A man, aged 32, with tabes, had had the initial lesion fourteen years before. There had been tabetic symptoms for four years with lancinating pains, loss of coordination, most pronounced ataxia, impotence, and impairment of rectal and vesical control. There were Argyll Robertson pupils; the deep reflexes were absent. The serum was ++++. The spinal fluid, Feb. 10, 1912, revealed: cells, 34; globulin, ++; Wassermann test ++++ to 0.2 c.c. The treatment consisted of fifteen salvarsan injections intravenously, and inunctions and injections of mercuric chlorid. The patient has been free from pain for three years. His bladder is still a little slow, and his sexual power has not returned. His ataxia, which was such a prominent symptom that he was hardly able to walk across the room, is now scarcely perceptible, and he frequently walks from 5 to 10 miles a day. The serologic findings, Aug. 30, 1917, were: serum, —; spinal fluid: cells, 2; globulin, —; Wassermann test, — with 2 c.c.; colloidal gold test, negative. This patient, who on account of his physical disability in 1912 was obliged to resign his position and was unable to work for two years, has during the past two years resumed his occupation, which he follows with zest and enjoyment.

CASE 8.—A man, aged 43, with tabes, had had a chancre twenty years before. Two years before he had double vision. When seen in January, 1911, his pupils were slightly irregular, but reacted fairly well to light and accommodation. The knee and ankle jerks were absent; the reflexes of the upper extremity were diminished, the left more so than the right. There was slight hypesthesia to pain and touch over the lower limbs. He was exceedingly nervous, and complained bitterly of his neuralgic pains. The serum was ++++. The first lumbar puncture was made in November, 1912, and revealed 14 cells; globulin, ++; Wassermann test, ++++ with 1 c.c. The serum was negative. Treatment consisted of ten intravenous injections of salvarsan and several courses

of mercury. There was a complete regression of the pains, which had been such a pronounced symptom, and of his nervousness and irritability. A second puncture made four years later revealed a normal spinal fluid. The blood has continued negative, and the patient reported recently that he felt perfectly well and never had a recurrence of his former unpleasant symptoms.

CASE 9.—A man, aged 29, with cerebrospinal syphilis, had had a chancre five years before, and sexual impotence for two years. The left pupil was slightly larger than the right, and both were sluggish to light; the knee jerks were hyperactive, the left more so than the right. Otherwise the examination was negative. The serum was negative; the spinal fluid: cells, 46; globulin, ++; Wassermann test, ++++ to 0.6 c.c. Treatment consisted of twelve intravenous injections of salvarsan and several courses of mercury and mixed treatment. The sexual power gradually improved. The blood and the spinal fluid have been negative for three years.

In such patients there are no indications for intraspinal injection unless they become intolerant to arsenic (sensitization) by the occurrence of skin eruptions, or develop nephritis or hepatitis. Should the latter complications occur, we have in intraspinal treatment a reserve method of great value. Intraspinal medication is indicated when the clinical symptoms and serologic findings are unchanged after a fair trial of intensive intravenous treatment. I have repeatedly seen patients who have had from thirty to forty injections of salvarsan, with a negative blood but strongly positive fluid and clinical symptoms of nervous system involvement. Only a few days ago I saw a young man whose infection was two years old, who complained of pains in the legs and had beginning Argyll Robertson pupils. He had received thirty-two injections of salvarsan, over 100 injections of mercury, and many inunctions. The blood was negative. Examination of the fluid revealed: cells, 24; globulin, ++; Wassermann test, ++++ to 0.4 c.c.; colloidal gold test, 1233100000. In these cases it is assumed that the choroid plexus does not permit the remedy to enter the fluid. This assumption is supported by the rapid improvement that follows intraspinal injections. When the blood Wassermann test is negative and the fluid test positive it is probable that interchange between the two fluids does not take place. Experience has taught me in such cases that the intraspinal treatment is the one of choice and is followed by results unobtainable by any other. Dr. Sachs' arguments as to positive pressure in the cerebral capillaries, the short contact of remedial agents with foci of disease, and the slow circulation of cerebrospinal fluid are interesting physiologic observations, but have little value in discrediting the results achieved. The logic of results accomplished must always supersede theoretical reasons why they could not occur. I could not convince my patients who have been cured or relieved of their symptoms by intraspinal treatment, after the failure of intravenous treatment, that, theoretically, it was impossible for such benefit to have taken place. They smile at theory in the light of accomplished results.

Certain patients in the early florid stage of syphilis during intensive salvarsan and mercury treatment show symptoms indicating invasion of the nervous system. The spirochetes enter the fluid and produce meningitis or endarteritis with resulting pupillary changes, monoplegias, optic or auditory neuritis, etc. This early invasive power of the spirochetes probably indicates a strain different from the usual one. The remedies cannot be given in sufficient concentration through the blood stream to counteract the spinal fluid invasion. Treated in the usual manner, these patients either die from the intense meningitis or become candidates for paresis or tabes or other types of cerebrospinal syphilis.

Twenty years ago I saw a woman with a chancre of the upper lip who developed less than six months after the infection a very intense syphilitic meningitis which was followed by unconsciousness and death. Dr. Reasoner[2] reported a case of syphilitic meningitis which appeared within six months after a primary lesion and ended fatally three months later.

Intraspinal treatment begun at this time acts with infinitely more rapidity than in older infections, and offers the only chance of cure and prophylaxis of the later degenerations. Such a case I had the opportunity of treating last year:

FINDINGS IN CASE 10

Date	Cerebrospinal Fluid: Cells	Globulin	Wassermann	Colloidal Gold Test	Serum
10/31/16	944	++++	++++ to 0.2 c.c.	5555542100	8/12/16 —
11/24/16	90	++++	++++ to 0.4 c.c.	4444430000	10/31/16+ +++
12/ 6/16	31	+++	++++ to 0.6 c.c.		
12/16/16	30	++	++++ to 0.8 c.c.		
12/30/16	30	+++	++++ to 1.0 c.c.	1133320000	
1/12/17	50	++	++++ to 1.0 c.c.	1123310000	
1/27/17	28	++	++++ to 1.0 c.c.	1123210000	
2/10/17	20	+	++++ to 1.0 c.c.		
3/ 3/17	21	±	with 1.0 c.c.	1123100000	3/ 3/17 —
3/24/17	18	±	with 1.5 c.c.		
4/14/17	8	±	with 2.0 c.c.	1112210000	
5/19/17	8	trace	with 2.0 c.c.	0000000000	9/ 6/17 —

Treatment 10/31/16-5/17/17: 6 intravenous injections salvarsan, 11 intraspinal injections salvarsanized serum (Swift-Ellis, fortified with ⅛ to ½ mg.), 18 injections mercury.

CASE 10.—A man, aged 45, developed an initial lesion in April, 1916. The Wassermann test when he came under observation, April 26, 1916, was ++++. He was immediately placed under treatment, and never developed any secondary cutaneous lesions. He had weekly injections of salvarsan and mercury. October 1, while on a business trip, he became very nervous and restless and felt nauseated. A few days later his right arm became numb, and for several days he had a transient aphasia. Previously he had had mild generalized headaches for about two weeks. He returned to New York in a few days, and a physical examination revealed a weakness of the right side of the face. The deep reflexes were very active, more so on the right side. The pupils were equal, and reacted promptly to light and accommodation. The outlines were very slightly irregular. On puncture there were found: cells, 944; globulin, ++++; Wassermann test, ++++ to 0.2 c.c.; colloidal gold test, 5555542100. The accompanying table illustrates the rapid subsidence of these strongly positive findings under the treatment employed.

METHODS OF DIAGNOSIS AND TREATMENT

A proper conception of the syphilitic infection and the development of an efficient therapeutic procedure cannot be expected from physicians who see only the late degenerative effects of the disease. The intra-

2. Reasoner, M. A.: Early Death from Cerebral Syphilis, with Successful Rabbit Inoculation, THE JOURNAL A. M. A., June 17, 1916, p. 1917.

spinal method should not be condemned because it fails to cure advanced paresis. Little can be expected from any method (intraspinal, subdural or intraventricular) in paretics who have reached the stage when institutional treatment is demanded. The future of such patients lies in the hands of physicians who can recognize the early beginnings of the malady and grasp the possibilities of early prophylactic treatment. When cerebral atrophy is present and the entire brain is permeated with spirochetes and their resulting lesions, the most to be hoped for is a modification or temporary arrest in the progress of the disease.

Serologic examination of the fluid in all cases of early syphilis often reveals paresis in its incipient stages when it is amenable to a therapeutic attack. Unless we are to continue hopeless before such cases and watch the slow mental deterioration of the patients, we must employ all the means at our command to ascertain when and how the pathologic process begins and use logical and efficient treatment at the proper time to combat it. The teachers of syphilis in our medical schools must constantly emphasize the possibility of early nervous system involvement and formulate the methods of diagnosis and treatment. In this way and in this way only can we hope to limit the number of cases of cerebrospinal syphilis.

The symptomatology of syphilis of the nervous system is well defined after permanent changes have taken place and the question of relief is more or less uncertain. Early examination of the spinal fluid anticipates future degenerative changes, and permits the use of remedial agents at a time when they can be most effective. To deny the value of spinal fluid examination or to state that it reveals no more than a careful physical examination deprives the unfortunate patient of an accurate insight by the physician into his condition and the institution of efficient therapeusis. The advocates of intraspinal therapy have never claimed that degenerated cords could be restored by any method of treatment. It has been demonstrated, however, that the meningitis which precedes and causes such degeneration can be reached and cured, and further degeneration prevented. In such cases improvement in the clinical symptoms proceeds uniformly with the improvement in the spinal fluid. A patient with tabes whose fluid shows a positive Wassermann reaction with an increase in lymphocytes and globulin can be assured that his symptoms, like pain, crises, etc., may be relieved or cured and the further progress of his trouble arrested. It is true that in some cases the posterior nerve roots may be partially degenerated or compressed in such a manner by sclerotic tissue that pain may persist after all the findings are negative. These are exceptional cases and by no means the rule.

The statement by the author of the paper in question that claims are made for the intraspinal method by men whose chief interest was centered on a change in the Wassermann reaction, in a reduction in the cell count and in a change in the globulin reaction in the cerebrospinal fluid, rather than a change in the clinical condition of the patient, is a severe reflection on the intelligence of such men, and is entirely unwarranted by the facts. The patients are truly the first consideration, and the real object of medical art is to relieve suffering and cure disease. Unless these objects are kept in view, medicine is of purely academic interest and has little concern for the invalid. I have always advocated the close correlation of clinical and laboratory work, and for that reason have developed and conducted a serologic laboratory in which an attempt has been made to eliminate the discrepancies and contradictory reports which are so confusing to the pure clinician. In case the laboratory report does not correctly interpret the clinical diagnosis, an effort is made to ascertain the correctness of the laboratory report or to review or correct the clinical diagnosis. The latter is no more infallible than the former, as we are frequently able to show by laboratory findings that the clinician may be in error. To belittle or deny the value of laboratory investigation in syphilis of the nervous system disregards entirely the careful work of the past, which has thrown so much light on diagnosis and indications for treatment, or as a guide to treatment, and on the nature of the early invasion of the nervous system by the spirochetes.

I agree with the writer that in many particulars the advantages of the intraspinal method have been grossly exaggerated. It has been demonstrated to me very clearly by long continued intravenous and intraspinal therapy that paresis in the stage which comes to the neurologist cannot be cured by any method. Its course is, however, modified more rapidly, and longer periods of remission are secured by intraspinal treatment than by any other. It is questionable, however, if this delay in the downward course of paresis is an advantage to the patient or his family.

The writer's sweeping assertion that the same biologic changes in the fluid have followed intravenous treatment, or repeated lumbar punctures, or the introduction of the patient's nonsalvarsanized serum, I must absolutely deny. I have followed in my own laboratory numerous cases of spinal fluid examination in which no change occurred after the introduction of nonsalvarsanized serum. These spinal fluids were sent for examination and reported on without knowledge by the serologist, Dr. Jagle, as to their origin. I should like to have the author show me a single case in which the Wassermann reaction in the spinal fluid has been influenced by nonsalvarsanized serum or repeated lumbar punctures. The cytology of the fluid may be changed by repeated lumbar puncture, but the other phases are not so influenced. This was demonstrated in my clinic last year where patients were treated over a period of five months by the Ravaut method, that is, the addition of salvarsan direct to the spinal fluid. Excepting variations in the cell count, the fluids remained unchanged. The same patients are now being treated with the combined Swift-Ellis-Ogilvie method with very definite results both clinically and serologically. As regards intravenous treatment, it has never been denied that the same fluid changes may not be brought about in certain cases. Those who uphold the advantages of intraspinal treatment maintain and have demonstrated beyond any doubt that in cases not influenced by intravenous treatment the intraspinal treatment yields positive results. This is the entire contention, and not that one method or the other can accomplish similar results in unrelated cases.

CORRESPONDENCE OF CLINICAL SYMPTOMS AND FLUID CHANGES

Dr. Sachs states again that there is absolutely no correspondence between a change in the cerebrospinal content and the condition of the patient. To one who approaches the subject with an open mind and is willing to accept evidence, I can demonstrate at least a hundred cases in which there is a very direct relationship between the various phases in the cerebrospinal

fluid and the patient's condition. Among them are more than thirty patients with tabes who have been cured of all their distressing symptoms, who have gained in weight and strength, and have regained business and professional activity. Their entire outlook on life has been changed. All these patients presented before treatment positive findings in the fluid. A number of them have been punctured from one to three years after all treatment was discontinued, and now show normal fluids. These patients may be definitely regarded as cured, as far as any further degenerative change is concerned. Ten patients with optic atrophy after one to two years show enlarged or stationary visual fields, and now have normal fluids; whereas before treatment all the phases were positive, including a cell count of from 24 to 150. The examinations of the eyegrounds and visual fields in these patients were made by ophthalmologists whose statements cannot be doubted.

In early syphilis with active meningitis, the symptoms rapidly subside with improvement in the pathologic fluid. In paresis and preparetic conditions a temporary remission may occur which is not indicated in the fluid excepting in the cell count and sometimes the globulin. In other cases, cerebral disintegration proceeds rapidly while the biologic condition improves. An active meningitis in these cases is influenced by treatment and registered in the fluid examination; but the deeper lesions progress as indicated in the failing mental powers. I could demonstrate many cases of paresis and taboparesis in which the Wassermann reaction remains persistently positive after two or more years of intravenous and intraspinal injections; but observations like these should not discredit established facts and lead to the rejection of the invaluable information that is afforded by this kind of investigation. We have learned that a fixed or persistent positive Wassermann reaction in the higher dilutions indicates in the majority of cases a potential paresis. Such observations properly interpreted support rather than detract from the value of the biologic tests.

In tabes, excepting in abortive forms and the terminal stages of long standing cases, in meningitis and meningo-endarteritis, the clinical symptoms correspond fairly closely with the serology, receding or advancing with corresponding changes in the fluid. Improvement in the Wassermann and globulin reactions may appear slowly and show the results of treatment long after the clinical picture improves.

The relationship of the Wassermann reaction to skin and visceral lesions is analogous, for large nodular skin lesions may entirely disappear after a short treatment, while the serum reaction shows positive for a much longer time. We persist in treatment until the reaction is modified or becomes negative, to guard against a possible relapse. The same sequence is encountered in the central nervous system; namely, a marked improvement in symptoms, persistence in the Wassermann and globulin reactions, a relapse after the discontinuance of treatment, then further treatment, until finally a negative fluid is obtained, with no further relapses. We have seen this succession of events so frequently that we urge treatment until we obtain negative findings or are convinced that the persistence of a positive Wassermann reaction in the high dilutions of the fluid with a paretic curve indicate approaching paresis.

No consistent or permanent results will be achieved in the treatment of syphilis of the central nervous system until the correlation of the clinical symptoms and biologic changes are appreciated by the physician under whose care these patients come. A correct and comprehensive grasp of the problem will come only to the one who has the opportunity over a period of years patiently to study and correlate the clinical as well as the laboratory side of the question. It would be unfortunate, indeed, for the victims of syphilis of the central nervous system if the views of Dr. Sachs as to the value of spinal fluid examinations were to prevail and our diagnostic and therapeutic methods revert to the time before Nonne showed the great value of such examination in disease of the central nervous system.

EXAMINATION OF THE FLUID

A systematic fluid examination in all stages of syphilis has thrown much light on the time when infection of the fluid occurs. It has indicated the probable time when the spirochetes are deposited in the cerebral tissues and in the spinal fluid which later cause paresis and tabes. It has given us a working hypothesis that offers hope to these unfortunate patients and enables us to anticipate the degenerative stages. A general appreciation of this theory of the nervous system infection will do much to lessen the number of incurable paretics and tabetics, and relieve our public and private institutions of the enormous expense of caring for them. As a result of accumulated experience, I have learned to place vastly more reliance on spinal fluid examinations in determining the progressive or stationary character of the infection and the prognosis that can be offered the patient, than from the objective or subjective manifestations that these patients present.

Among our tabetic cases we find a group which shows little or no change in the spinal fluid, while presenting typical Argyll Robertson pupils and changes in the deep reflexes. These cases we look on as abortive or rudimentary tabes in which the process has cured itself or has been influenced by the previous treatment that the patients have received. There is, of course, here no indication for intraspinal injections. In other words, the fluid must show pathologic changes before we are justified in introducing our remedies by this channel. The same argument applies to optic atrophy. If we find a relatively high cell count with other phases positive, we assume that the meningitis which has involved the optic tracts or nerves may be influenced by the treatment employed.

IMPORTANCE OF PROPER TECHNIC

The criticism and opposition to the method are largely due to the unfortunate results that followed the employment of the Ravaut technic, that is, the introduction of from 1 to 5, 6 or more milligrams of neosalvarsan added directly to the spinal fluid. A number of cases so treated have come under my observation with a traumatic myelitis causing bladder and rectal paralysis and with, in some cases, complete and permanent paraplegia. We have gradually learned, however, the tolerance of the cord to the remedial agent, and have evolved a technic that is free from the dangers mentioned. We have learned that low tabes with advanced degeneration will tolerate only the smallest doses, or is best treated by the original Swift-Ellis method. In high tabes or when the degeneration is of light grade, and in paresis, relatively larger doses can be used and at more frequent intervals. We have learned, too, that less irritation is produced and more benefit follows if we permit about 20 or 25 c.c. of fluid

to accumulate in the receptacle attached to the spinal puncture needle and then add our salvarsanized serum to it. In this way it is diluted before entering the subarachnoid space. Two objects are accomplished by this procedure: first, the minimum of irritation, and second, the withdrawal and medication of a larger quantity of spinal fluid. If we medicate a larger amount of the spinal fluid, we believe in replacing it that it will reach more readily the more accessible perineuronal lymph spaces. Our results in optic atrophy and in cerebral meningitis support this supposition.

It is needless to say that the proper employment of a procedure so highly technical as this one requires the aid of trained assistants and a well equipped laboratory. It requires the judgment gained by experience as to the dose to be used and the intervals that should elapse between them. Rest periods between courses of injections are also important, so that we may properly estimate the clinical and serologic improvement. During the past three or four years we have given hundreds of injections with no deaths and with no more serious symptoms than those that follow an ordinary lumbar puncture. Many patients prefer the intraspinal treatment to intensive intravenous treatment, as the constitutional reaction is generally less marked. In cases treated intravenously in the intensive manner mentioned by Dr. Sachs, I have seen severe and fatal forms of generalized exfoliative dermatitis, persistent forms of gastro-enteritis, nephritis and obstinate cases of jaundice due presumably to fatty degeneration of the hepatic cells. The intraspinal treatment can be used without subjecting patients to these dangers, and aside from the advantages of the method and properly selected cases it is a valuable reserve treatment in patients who have lost their tolerance to salvarsan intravenously or who have developed arsenic dermatitis, nephritis or hepatitis. In acute cases of early meningitis it is the method of choice.

CONCLUSIONS

1. In tabes, certain types of cerebrospinal syphilis like meningitis, meningo-myelitis, meningo-encephalitis and in optic atrophy with positive findings in the fluid, intraspinal treatment succeeds in relieving or curing the conditions after failure of intravenous and other treatment.

2. It is the only procedure that can be employed after the intravenous treatment fails or when the patient develops an intolerance to arsenic.

3. With proper technic and experience, it is less dangerous than intensive intravenous treatment.

4. In paresis with stigmata of degeneration, the most to be hoped for is temporary arrest of the encephalitis. There are borderline cases of meningo-encephalitis which simulate paresis and which are curable by the treatment in question.

5. The criticism of the method is based largely on the results following imperfect technic and by its employment in cases without clear indications afforded by spinal fluid examination. Aside from these reasons, it has been condemned after short and imperfect trials. In some cases the existing lesions are activated by early injections and cured by persistence in the treatment.

6. The author's statement that it is regrettable that changes in biologic findings should be made the criterion of the efficiency of any therapeutic method is unfortunate from the standpoint of the patient as well as the investigator. With the exceptions noted in the body of the article, there is an intimate relationship between the clinical symptoms and the fluid findings. It is not difficult to select individual cases in which the Wassermann and globulin reactions are unchanged after prolonged treatment; but conclusions based on such exceptional cases are one sided, unfair, and fail entirely to interpret or correlate the fundamental principles involved. If reliance is placed on clinical improvement alone as a criterion of the action of our remedies and the fluid changes disregarded, few, if any, permanent cures will be achieved, and sooner or later the patient's condition will relapse. There is as much reason for basing the efficiency of a therapeutic procedure on the changes in the biology of the fluid as there is in using the blood-Wassermann as a test of the value of treatment of syphilis in general. If we were to discard the positive knowledge acquired in the past few years as a result of systematic examination of spinal fluids in syphilis, we should have vague ideas as to the time the fluid is infected, no clear conception of the difference between active and abortive tabes, and no method of differentiating early paresis from conditions that simulate it. Neurasthenic states, headaches, phobias, vague changes in mentality, crises, or impairment in the sexual function are constantly overlooked or wrongly diagnosed by the pure clinician. Arteriosclerosis, chronic alcoholism, and diabetes may cause symptoms easily mistaken for the syphilitic syndrome.

7. The future of the syphilitic individual and the hope of anticipating or arresting the incurable degeneration is largely dependent on early and systematic examination of the spinal fluid.

8 West Seventy-Seventh Street.

ROENTGENOGRAPHIC EXAMINATIONS OF THE URINARY TRACT

REVIEW OF A SERIES OF ABOUT 500 CASES*

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This paper presents the results (some more and some less completely) obtained in 500 consecutive roentgenographic examinations of the urinary tract occurring in private practice. These cases were referred by 230 different physicians or surgeons, and it has been impossible to obtain full clinical records of all of them.

It will be appreciated that the accuracy and the extent of the clinical observations made by so large a group of men will vary considerably, and that the data derived from them cannot compare with the information which may be obtained from a hospital in which all of the work is done by a comparatively small group of men accustomed to working together.

In a few of the examinations, pyelography was combined with the ordinarily roentgenographic examination; but the number of these cases is small, and they have not been considered in this series. In a few cases our own records are incomplete, and these have been rejected from the series. Sometimes our records have been borrowed and not returned. There remain 455 cases of which we have fairly complete records of the

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roentgenographic reports. No case has been rejected from the list in which it is even suspected that an error was made in the roentgenographic diagnosis.

In practically every case, the report of the examinations was made from the roentgenograms alone and without taking into consideration the clinical history, the symptoms or the urine investigation. The results are, therefore, what may be obtained with the roentgenograms alone, not aided by pyelography and without any clinical help.

It must be obvious that some of the errors recorded might have been avoided had we used the combined method, and some of the cases reported doubtful or indeterminate would probably have been reported positive had we been in possession of the clinical data. On the other hand, it is likely that in a certain number of the doubtful or indeterminate cases, the possession of the clinical data might have led us into positive statements which would later have proved incorrect.

In order to allow sufficient time for subsequent observation, no examinations made later than Dec. 31, 1916, are included. All examinations in this series were made during 1914, 1915 and 1916, a period in which the technic was practically the same as that of today. The results, therefore, represent fairly what may be expected under present conditions from roentgenographic examinations alone. Before the beginning of the war, the photographic materials available were much more reliable than now, and the accuracy of results obtained in these examinations was somewhat greater.

In order to check up the results of the roentgenographic examinations and to obtain clinical data, the following questionnaire was recently mailed to every physician or surgeon referring a case in this series:

Date of roentgen-ray examination:

1. Was the roentgen-ray examination helpful to you in diagnosis?
2. Has the patient been operated on?
3. What did operation disclose?
4. Result of cystoscopy, if any:
5. Were calculi passed?
6. Did urine contain: (*a*) Blood? (*b*) Pus? (*c*) Tubercle bacilli?
7. Were symptoms due to lesions outside of urinary tract: (*a*) Appendicitis? (*b*) Oophoritis? (*c*) Salpingitis? (*d*) Colitis? (*e*) Gallstone? (*f*) Other causes?
8. Any additional information bearing on the accuracy of the result of the roentgen-ray examination:

The results of the roentgenographic examination of the whole 455 cases have been tabulated and are presented here, but we have succeeded in obtaining clinical data in only about 290 of these cases and some of these replies are incomplete. We have, however, accepted no reply which does not give a satisfactory answer to the question regarding the presence or absence of calculus.

The chief thing sought in these examinations is to determine the presence or absence of calculus. In the 455 cases of which we have complete records of the roentgenographic examinations, calculi were reported in 119 cases. In 314 cases no calculi were reported, and in twenty-two cases there were suspicious shadows which we reported as doubtful. The plates of some of these doubtful cases presented shadows which could be explained either by urinary calculi or by extra-urinary calcareous bodies. In all of these doubtful cases it was recommended that additional examination be made with the opaque ureteral catheter in the ureter, but in most of them this procedure was declined as unnecessary. In a few of the doubtful cases, the plates were not satisfactory because of incomplete preliminary clearing out of the digestive tract. Whenever possible, additional plates were made to correct these defects, but there remain some cases in which it was impossible to obtain an additional examination. In more than half of the unsuccessful and doubtful cases, we could not make the examinations as complete as we desired.

Of the 119 cases in which calculi were reported, twenty-two presented two or more calculi. The total number of calculi reported was 158. Of these, thirty-eight were in the left kidney; thirty-seven in the left ureter; thirty in the right kidney; twenty-eight in the right ureter; nineteen in the bladder, and six in the prostate. Of the 119 calculus cases, forty-nine were proved correct, either by operation or by the passing of calculi. In the remaining seventy of these cases we have been unable to obtain definite information that the calculi have actually been seen. We have regarded no case as proved unless the calculi have been recovered.

We have been unable to obtain reasonable evidence that there was any error in the diagnosis of calculus in any of these 119 cases reported positive. Of the doubtful cases, calculi have been demonstrated by operation in two cases and by passing of stone in three cases. In the remaining seventeen, we have no information as to calculus, but other probable causes for the symptoms have been reported in most of these.

Of the 314 cases in which the roentgenographic examination was reported negative for calculi, stones have been subsequently passed in five cases. In two cases stones were removed by operation. We have, therefore, seven proved errors in the series of 455 reports, a percentage of about 1.5 of the total number of cases examined. Perhaps it would be more accurate to reckon this percentage as 2.4 per cent. of the 290 cases in which we were able to obtain satisfactory replies to our question blank.

The more I have worked on these tables of statistics, the more I have been impressed with the impossibility of obtaining absolute accuracy. There are doubtless some errors in the clinical records that have been kept. Another source of error which has been difficult to avoid is that in several cases in which the report of the roentgenographic examination was negative, we were told that stones had been removed by operation, but on more careful investigation it was found that the calculi were passed or removed by operation prior to the time of the roentgenographic examination. This difference in the date was in some cases overlooked by the attending surgeon, who reported us in error, when in reality no mistake was proved.

Comparisons have frequently been made between the expert statistician and various kinds of liars, always to the disadvantage of the statistician. Since preparing this paper, my sympathies are all with the statistician.

While the chief function of the roentgen ray in examinations of the urinary tract is to determine the presence or absence of urinary calculus, other useful

or interesting information is incidentally obtained. In many of the cases reported some information was given as to the size, outline, position or density of the kidney shadow. In this series there were reported such anomalies as sixty-two in size of kidney, seventeen in outline, fifteen in position and thirteen in the density of the kidney shadows. In a few of these cases the abnormalities of the kidney shadow were proved to be connected with a pathologic condition of the kidney.

In the course of these examinations many other calcareous bodies were shown in the neighborhood of the urinary organs. In this series we have reported eighty cases with phleboliths, ten with calcified mesenteric glands, three with intestinal concretions, and seven with gallstones.

Pathologic conditions of bones and joints are frequently observed in the course of examinations of the urinary tract. In this series there were reported forty cases of osteoarthritis and five cases of other disease of the bone or joint. It seems likely that in a few of these cases, disease of bones or joints was the cause of the symptoms; but we are unable to obtain accurate data as to the number.

Anomalies in the development of the lumbosacral region are not uncommon. While these anomalies may be of only academic interest, they are shown perfectly well in roentgenographic examination of the urinary tract, and I think they should always be noted, since they may occasionally be proved to have an important bearing on the symptoms. In some of these cases it was found that one or both transverse processes of the fifth lumbar vertebra were enlarged and articulated with the sacrum and ilium. This anomaly is commonly described as sacralization of the fifth lumbar vertebra. We have noticed that a number of these patients presented the symptom of persistent pain in the back after some strain or unusual exertion, when no other cause could be found to account for the symptoms. This pain has been most frequent in cases in which there is unilateral sacralization. The pain is usually felt on the side opposite the sacralization.

In another class of anomalies, of which ten are reported in our list, there was incomplete union of the first sacral vertebra with the rest of the sacrum.

In some of these cases there were six vertebrae without ribs, between the twelfth dorsal and the sacrum. In others there were only four vertebrae in this region without ribs.

The answers to some of the other questions in our blank are given below. In answer to the first question as to whether the roentgen ray was helpful in diagnosis, 216 replied "Yes," and forty-four "No." In the remainder no answer was given. On looking over these replies we are impressed with the fact that the answer to this question was purely a subjective matter and depended somewhat on the weather or the state of digestion of the person answering. Many answered the question in the affirmative when our report of the roentgen-ray examination was negative and seemed to me of no value. In other cases in which the roentgen-ray examination gave much definite information as to size, number and position of calculi, the reply was that the roentgenographic report was not helpful.

The answer to Question 2 of our blanks showed that of the 290 patients concerning whom we have clinical data, seventy-two were operated on and 190 were not operated on. In forty-three cases cystoscopic examinations were made, and in 202 cases no cystoscopy was made. Calculi were passed in twenty-two cases, and in 229 cases it was reported that no calculi had passed.

The replies showed also that of the negative cases symptoms were accounted for by appendicitis in six; by ovaritis or salpingitis in six; by colitis in one; by gallstones in seven, and by other causes in nine cases.

In 242 cases the urine examination showed blood, and in 247 cases pus was shown.

In the forty-nine cases in which calculus was proved by operation or by passing the stone, the urine examined showed blood and no pus in seven cases; pus and no blood in two cases; both pus and blood in thirteen cases; neither pus nor blood in three cases, and in six cases no report. Of the remaining seventy cases reported positive for calculus, but not proved by operation or passing of stone, two presented blood and no pus in the urine; two pus and no blood; ten presented both pus and blood; three neither pus nor blood, and in forty cases there was no report. Of the five cases in which the roentgen-ray examination was doubtful, but in which the presence of calculi was proved, both pus and blood were found in the urine of two; one presented blood only, and one had no pus or blood and on one there was no report. Of the doubtful cases not proved positive, two had both pus and blood; three pus only; two blood only, and five neither pus nor blood, and five were not reported. Of the cases in which the roentgenogram was negative, nineteen revealed blood only; twenty-five pus only; fifty-four both blood and pus, and sixty-eight no blood or pus.

It will be observed that of the cases in which the presence of calculus was proved, about 52 per cent. presented both blood and pus in the urine. In these cases only 12 per cent. presented neither blood nor pus in the urine, and of those cases reported negative, nearly 41 per cent. presented neither pus nor blood.

The preparation of the data in this paper has impressed me with the difficulties of obtaining complete statistics of cases occurring in private practice, but I trust the results given will not warrant the usual uncomplimentary classification of the statistician.

I find that the number of our errors in the diagnosis of urinary stone is about twice as large as I had supposed, but the percentage is still smaller than that which is reported from examinations made in various hospitals or clinics. It is possible that if all the errors could be known, the percentage would be much higher; but I doubt it. A higher percentage of accuracy should be expected in private practice than in hospital or dispensary work. The success of the roentgen-ray examination for urinary stone depends largely on the intelligent cooperation of the patient. The average hospital or dispensary patients, especially those who speak some unknown foreign language, cannot be depended on to cooperate thoroughly in the success of the examination. They are very prone to breathe or to move during the exposures. In private practice more time is usually given to these examinations, and more plates are made. The economy practiced in most hospital roentgen-ray departments undoubtedly results in the sacrifice of accuracy. The duplication of plates and the use of the stereoscopic methods are not commonly employed in hospitals, and these procedures undoubtedly lessen the number of errors.

It is possible that the mode of life of some of the foreign population which forms a bulk of certain dispensary patients conduces to the formation of uric acid or urate calculi which are not readily demonstrated by roentgenograms. A small percentage of error must be expected even under the best conditions, but we should remember that there is no absolutely infallible method of diagnosis of urinary stone.

480 Park Avenue.

CLINICAL DIAGNOSIS OF LITHIASIS OF THE UPPER URINARY TRACT *

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If in this symposium the word "clinical" is to be used in distinction from "roentgen-ray" diagnosis, I shall have to throw up the sponge at once, because the absolute diagnosis of stones in the kidney or ureter without the use of the roentgen ray is impossible. A stone may be present anywhere in the upper urinary tract, either without giving any sign or symptom of its presence, or on the other hand, it may present any of a great variety of signs and symptoms such as would point to any of the various urinary troubles, or even such as would strongly suggest a diagnosis far removed from the urinary tract. Then again, a patient may present what we have been pleased to call a "typical" story of renal colic, bladder irritability, etc., and even show pus and blood in the urine, and yet no stone be present. This is nicely shown in a table by Eastmond as given by Keyes. In a series of eighty cases, sufficiently suggestive of stone to require roentgenographic examination, only twenty-three were positive, and of these, only eight patients complained of the so-called typical symptoms. On the other hand, of the fifty-seven which showed no stone, forty-four did have typical symptoms and in addition, thirty showed either pus or blood, or both, in the urine. In fact, according to this table, there is a better chance of finding a stone if the symptoms are indefinite than if they are typical, as only 24 per cent. of the latter had calculi, while 40 per cent. of the former were positive.

In a recent study by O'Neil of 273 cases in the Massachusetts General Hospital in which a preliminary diagnosis of nephrolithiasis was made, the same discrepancy was revealed between the original diagnosis and the real lesion. One hundred and thirty-three of these were house patients, and of this number, twenty-eight were proved to have no stone. Of these, no diagnosis could be made in four cases. The remaining showed a variety of lesions: Hydronephrosis, kinked ureter, movable kidney, and pyelitis were present eight times, while nephritis, appendicitis, gallstones, arteriosclerosis, abdominal glands, vesical calculus and chronic lead poisoning accounted for the rest. Of the 140 cases which got no farther than the outpatient department, more careful study showed only twenty-five with positive findings. The final diagnosis in the remaining 115 cases was as follows: Orthopedic lesions, such as back strain and sacro-iliac strain, accounted for thirty-six; no demonstrable lesion could be found in seventeen; genito-urinary lesions, including nearly every diagnosis, covered twenty-seven, while the rest were scattered far and wide from constipation to syphilis, and from hernia to tabes. Nearly every one who has written anything on this subject gives the same story.

From these two tables it seems that symptoms in themselves are merely suggestive at best and may even be misleading. A careful urinalysis likewise may lead us astray, but almost always in one direction. The presence of abnormalities may suggest a urinary lesion which is really not present, but a persistently normal urine in the presence of stone is more uncommon, although still to be reckoned with. In 150 cases in which the urine was carefully examined, Cabot reported persistently negative findings in twenty-one; of these, fifteen were ureteral stones and six renal. It seems almost needless to emphasize the fact that in the female, only a catheter specimen has any value, and that a centrifuged sediment should always be examined even in the absence of albumin.

A good roentgenogram is at the same time our best evidence as to the presence or absence of a stone, and likewise the stumbling block most likely to lead us into trouble, for implicit faith in roentgenography, without the confirmation of other means of diagnosis, will often carry us into needless, even disastrous operations; for the misleading evidence most often presented is the presence of a shadow very suggestive of stone, but which in reality has nothing to do with the urinary tract. The percentage of failure to show a stone which is present is very small if the case is in the hands of a good man, and is variously stated to be from 6 to less than 1 per cent. If the roentgenogram reveals a shadow which, in view of other attendant signs and symptoms, probably represents a stone, it still must be proved by means of stereoscopic plates taken with an opaque catheter in the ureter. A single plate is of value, but occasionally a calcified gland may lie in front of the ureter or kidney in such a way that without stereoscopic plates we cannot discover that it is not at all connected with the urinary tract. If the shadow is in the kidney region, two plates taken, one during quiet expiration and the other at the end of forced inspiration, answer much the same purpose.

If the ureter catheter meets an obstruction in the ureter at a distance from the bladder corresponding to the distance on the plate, and other characteristic signs and symptoms are present, the diagnosis is almost certain, but not quite. Cabot speaks of two cases in which a tuberculous gland in the mesentery of the large intestine caused pressure on, and obstruction to, a ureter with dilatation above. In such a case, stereoscopic plates and obstruction to a catheter will fail to make the diagnosis. The use of a wax-tipped catheter, in the hope that any stone present will make its mark, is likewise doomed to failure. But the injection of the ureter above the obstruction, and the demonstration of a dilatation, will show the need of operation to relieve pressure, and in spite of our inability to make an absolute diagnosis in these cases, we are consoled by the thought that operation is necessary. In case a stone is in that portion of the ureter opposite the sacro-iliac joint, it has been demonstrated by Dodd and Cabot that it may fail to show in the roentgenograms even though it is of considerable size and density. In these cases, a careful study with the wax-tipped catheter is necessary, and likewise an injection of the ureter above the obstruction is often of value,

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provided the obstruction is not too great to allow the passage of fluid. The latter procedure, which was condemned as being unsafe a few years ago, is today rendered nearly if not quite harmless by the use of either silver iodid emulsion or thorium. There is finally a small group of patients who have suggestive symptoms, a roentgenogram showing a shadow which might be a stone low in the ureter, with a normal or only slightly abnormal urine, and a ureter opening which will not admit a catheter. Cabot reported two such cases, and I have seen one since. In the last case, I cut the ureter opening freely with the operating cystoscope and still failed to get a catheter in more than a quarter of an inch. A wax-tipped catheter showed no marks, but as I have, on other occasions, failed to get anything conclusive when the catheter met a stone head on, I did not consider it good negative evidence. Operation failed to show a stone, and though some stenosis was apparently present, it did not seem enough to have entirely blocked a ureter catheter, or to have caused the symptoms.

With a shadow in the kidney region, the wax-tipped catheter is still less to be depended on, since a stone in any one of the lower calices will not be touched by a catheter, and accordingly no record will be left on the wax.

Some authors speak of the use of collargol injected into the pelvis and rendering visible a stone previously invisible. Although I have tried this method, using silver iodid emulsion instead of collargol, and have seen it tried several times, I have never seen it work.

Thus we see that in order to make an accurate diagnosis even of the presence or absence of a stone, we must use all the means at our command; but when we have done this, it is not enough, for the best interest of the patient demands that we should likewise find out the following facts: (1) the presence or absence of another kidney together with its functional ability; (2) the amount of damage done in the kidney having the stone, and (3) the position of the stone in the kidney. In order to do this, the use of other tests, as well as those already spoken of, is necessary. Urinalysis will disclose the presence or absence of any gross damage by its appearance, odor, amount of pus and albumin, and a stained sediment and culture will reveal the type of infection, if any. As stone and a negative urine are perfectly compatible, the presence of the latter is of value only in showing the absence of any damage or infection.

Cystoscopic examination will reveal the presence of another ureter opening which is functioning, and the passage of a catheter will allow the demonstration of the presence or absence of infection and the functional capacity of the well kidney. It is often important, especially in those cases in which previous examination indicates that operation is going to be difficult, to know as accurately as possible in which calix the stone is situated. This can be told very well by having one roentgenogram followed immediately by another, without moving the patient, and with the pelvis injected for the second picture. The second roentgenogram gives us also valuable information as to the amount of destruction of the kidney that has taken place. In fact, it may be the only thing which gives us a real indication of this damage. For even a large calculus pyonephrosis may not show on urinary examination the amount of pus we should expect, and because the presence of a stone can cause a reflex inhibition on the functional capacity of the kidney, a very low red test cannot always be relied on to prove the amount of damage it suggests. But when a roentgenogram reveals several stones at the lower pole of the kidney and then a second roentgenogram with the pelvis injected shows not only a grossly dilated lower calix but also a thinning of the cortex at the upper and middle calices, we may consider a nephrectomy the probable operation of choice. In those cases which present a single calix much enlarged and the cortex over it thinned as shown by the roentgenogram, with pelvis injected, we can be confident that a small nephrotomy opening will be our best mode of operation. But even with these procedures, a sufficiently accurate diagnosis as regards the condition of the kidney cannot be made to justify our promising to take out the stone and leave the kidney, as I have had one or two patients demand. Since a destroyed kidney may shut down around a single large stone, not only is the amount of pus very small, but the roentgenogram with injected pelvis discloses no gross dilatation of the pelvis, even though it is absolutely abnormal.

DIFFERENTIAL DIAGNOSIS

In the genito-urinary clinic of the Massachusetts General Hospital, it is fairly common for a patient to be referred with diagnosis of stone, with pain or colic typical in character and with pus and albumin in the urine, whereas a careful examination reveals tender, distended, nodular, seminal vesicles, no pus from the kidneys, and a negative roentgenogram. Treatment of these vesicles cures the stone. Two or three patients have volunteered the information when a finger was pressing on the vesicles, that "there is the pain now." I thought this was conclusive until a short time ago when I examined a patient who volunteered such a statement and found on roentgen-ray examination the shadow of what proved to be a large ureteral stone about half an inch from the bladder opening on the side corresponding to the one tenderest on pressure. Generally the colic of seminal vesiculitis is lower down in the back than the renal colic, and follows the crest of the ilium in a more characteristic fashion.

From a review of these cases of mistaken diagnosis it is evident that the appendix has been the greatest sufferer when error has been made. That a certain number of appendixes must inevitably be sacrificed in case of doubt is due to two facts too well known to require comment: 1. An acute suppurating appendix may be present without a corresponding amount of tenderness and rigidity. 2. A considerable amount of microscopic blood may be present in the urine, due to the pressure of an acutely congested appendix on the ureter. In cases of doubt, therefore, the appendix should be removed if for any reason it is not possible to take the time, or the apparatus is not at hand, to make a more accurate diagnosis. I have recently known a case in which a very good surgeon did delay operation in case of doubt with a resulting fatal peritonitis, so that I am sure it is much better to take out an innocent appendix than leave a guilty one. But the same thing cannot be said for other intra-abdominal lesions which do not require an immediate decision, and certainly it seems not only inexcusable but almost criminal to subject any person to operations such as are shown by the following two cases. The first patient, who showed five stones in the right kidney, had at the first operation a dilation and curettement. At the second operation the right ovary was removed and at the third operation the left ovary was removed. The sec-

ond patient had (1) an operation for gallstones, though the gallstones were not found; (2) an appendectomy and a resection of the right ovary, and (3) a ventral fixation of the uterus. Not until eight years after the first operation was it discovered that a stone only three-quarters inch in greatest diameter was blocking the right ureter.

The cases that are complicated by orthopedic lesions are among the most interesting and likewise the most difficult to straighten out because it is seldom that an orthopedic surgeon cannot find postural strain, ptosis, or flatfoot; but whether the real diagnosis be urinary or orthopedic the patients may present themselves to either surgeon.

In the series of cases at the Massachusetts General Hospital previously spoken of, thirty-six cases in which the first diagnosis was renal stone showed orthopedic lesions, of which postural strain and abnormality of the fourth and fifth lumbar vertebrae made up fourteen, the remaining being spread among flatfoot, ptosis, scoliosis, hypotrophic arthritis of the spine, back strain and sacro-iliac strain. In four of these cases the urine was remarkably abnormal; in spite of a negative roentgenogram it seemed difficult to attribute all of the trouble to the orthopedic diagnosis, and it was thought possible that a small stone had been present and passed before the patient was seen. In twenty-four cases there were urinary symptoms, and of these cases the urine was normal in fifteen, so that nothing in the urinary tract could have been the cause of these symptoms. Moreover, some of these patients were relieved of their urinary difficulties when their orthopedic troubles were corrected. The relation between an abnormality of the back and urinary frequency is not at all understood and, indeed, very seldom recognized; but it certainly does occur, and when accompanied by pain and perhaps a suspicious roentgenogram it may lead us far astray. The following case is a good example: Miss X came for relief of urinary frequency and pain low in the left side, sometimes coming on in attacks. A diagnosis of ureteral stone had been made but never proved. The urine was normal; cystoscopic examination revealed a slight reddening around the left ureteric orifice, and the ureter would admit only a No. 5 catheter, but that perfectly freely. No stone could be demonstrated. The orthopedic consultant found marked postural strain, and after the use of proper support and exercises, the frequency and pain both disappeared.

CONCLUSIONS

No single piece of evidence, or combination of evidence, is sufficient to make an absolute diagnosis of a renal or ureteral stone. All chance of mistake should be excluded by using ureter catheters, wax-tipped catheters, stereoscopic plates, and roentgenograms with injected pelvis.

In all cases with indefinite symptoms, such as recurrent or chronic pain in the abdomen or back, even when a definite orthopedic abnormality is present, careful, repeated examination of the urine should be made, including a microscopic examination of centrifuged sediment, regardless of the presence or absence of albumin. In the female, such examination is of value only when the urine is obtained by catheter. Whenever operation is considered in any one of this group of cases, roentgenoscopy in addition to the foregoing examination is necessary.

87 Marlboro Street.

A CLINICAL STUDY OF LITHIASIS

BASED ON A SERIES OF ONE HUNDRED AND NINETY-EIGHT CASES *

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In urinary lithiasis our plan of action depends entirely on an analysis of the individual case, and the degree of our success in the treatment will be proportionate to the completeness of our understanding of the pathology presented.

An analysis of 198 cases which I have studied in hospital and private practice forms the basis for certain deductions relative to the formation of urinary calculi, the clinical picture presented, and a general outline of treatment.

Of the 198 cases, 111 were in males, 87 in females. Excluding the cases of calculi of the lower urinary tract, 12 of which occurred in females, there were 73 males and 77 females with calculi of the upper tract.

These figures are at variance with recorded statistics. The usual larger proportion of males is probably due to the fact that more women with urinary symptoms consult the gynecologist than the urologist, and a fair comparison could not be obtained.

INCIDENCE ACCORDING TO AGE

Age of Patients	No. of Cases
1 to 9 inclusive	1
10 to 19 inclusive	3
20 to 29 inclusive	32
30 to 39 inclusive	55
40 to 49 inclusive	43
50 to 59 inclusive	29
60 to 69 inclusive	28
70 to 79 inclusive	5
80 to 89 inclusive	2
Total	198

The relatively large number of patients past middle life presented vesical calculi.

In the formation of urinary calculi, two predisposing factors have stood out most prominently. These are (1) a gastro-intestinal disturbance, and (2) disturbed drainage along the urinary tract. The question seems to be more one of body elimination than one of intake.

The most important pathologic condition of the gastro-intestinal tract in this relation to lithiasis is some degree of stasis. The causes of stasis can be ascertained only by a study of the entire alimentary tract.

Through intestinal stasis, the chemistry of the blood supplied to the kidney is altered and bacteria in large numbers enter the urinary tract.

The effect of disturbed drainage of the urinary tract is most easily studied in the bladder. The rapidity with which decomposition takes place and calculi form when residual urine accumulates, we have all noticed in cases of vesical obstruction with retention. There is no reason why the same action does not take place in the kidney.

Interference with kidney drainage is most often due to abnormal mobility. The mobility may be slight and still cause a kinking at the ureteropelvic junction if the ureter is fixed. Of the 77 females showing calculi of the upper urinary tract, in 51 the calculi were on the right side, in 22 on the left, while 4 were

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bilateral. In 39 of the right-sided cases, and 11 of the left-sided, a certain degree of mobility, interfering with drainage, could be demonstrated.

As all ureteral calculi are probably renal in origin, they may be grouped together in this consideration.

In the males, twenty-eight were right-sided, thirty-eight left-sided, and five bilateral. Unfortunately, in but few of these cases was the renal mobility ascertained, but in several it was strikingly marked. One patient presented a pelvic kidney, and several others showed a well-marked prolapse. Abnormal mobility will no doubt be demonstrated more frequently in males if more careful examinations are made. Palpation which fails to reveal the lower pole of the kidney on deep inspiration does not exclude this possibility. Better muscular development in the male interferes with palpation. Recently, during the examination of a patient, a kidney which could not be palpated on deep inspiration dropped to the brim of the pelvis while the patient was standing erect.

Three patients with renal calculi gave a history of injury. One patient presented a calculus with hypernephroma.

The symptoms presented by renal calculi may be of so slight a nature as to pass unnoticed for many years, as in the following cases:

CASE 1.—A man, aged 33, had had a vesical calculus removed three years previously. He came for consultation for vesical irritability, suspecting another vesical calculus. Investigation disclosed a branching calculus completely filling the pelvis and calices of both kidneys. The patient positively refused operation, saying he had had no pain or discomfort.

CASE 2.—A woman, aged 65, entered the hospital with the diagnosis of appendicular abscess. A definite mass was palpable in the lower right quadrant. An examination of the bladder revealed an obstruction of the right ureter with thick pus. On dislodging the plug in the ureter, and by gentle pressure on the abdominal mass, 16 ounces of thick, foul-smelling pus were evacuated through the cystoscope. Exploration of the abdomen showed a calculus the size of an orange in a shell of a kidney.

How long the calculus had been present in these cases, and in many similar ones, one cannot say. I recently removed a calculus from the left kidney pelvis of a man, aged 34, who was sent to me to be treated for a chronic urethritis. There were no symptoms referable to the kidney, although the kidney pelvis was so surrounded by lymph exudate and fat that the calculus resembled the stone in the center of a peach. The vesical irritability entirely disappeared after the removal of the calculus.

Pain is the most constant symptom of renal calculus, and was present in some form in thirty-five of forty-three patients. In renal calculi the pain was never severe, except when the calculus was small and located in the pelvis or in a calix, so as to interfere with the urinary flow, thus increasing intrarenal tension.

A dull ache localized in the costovertebral angle was the most typical symptom, but was not constant, and was evidently due to local infection. Radiation along the course of the ureter was present in seven cases in which the calculus was located at the ureteropelvic junction. Other radiations noted were to the opposite kidney region, chest, right lower quadrant, testes, thigh, and entire back. Invariably the larger the calculus, the less severe the pain, and in eight cases only vesical symptoms were present. In four of these cases the kidney had gone on to almost complete destruction. Tenderness in the costovertebral angle or anteriorly in the right upper quadrant was elicited in thirty-two case, and the kidney was palpable in only eighteen. Roentgenograms were positive in all but two of the cases of renal calculi. In these two a diagnosis of an obstruction at the ureteropelvic junction was made, and at operation a calculus was found. The character of the urine was found in sixteen cases to be of no aid in establishing a diagnosis of renal calculus, while in the remaining twenty-seven cases blood and pus cells were found in varying quantities. Profuse hematuria was present in four cases. Colon bacilli were found in thirty-one cases, staphylococci in four. In two bilateral cases the entire renal cavity was filled with phosphatic deposit.

If a calculus does not increase in size too rapidly, it passes from the kidney into the ureter, and in its passage through this channel may give rise to a clear-cut picture of renal colic, or to a greater variety of symptoms than any other abdominal condition.

Of 150 cases of calculi of the upper urinary tract, 107 were ureteral calculi, and while they were found lodged at almost every point, from the ureteropelvic junction to the vesical orifice of the ureter, eighty-six were lodged in the lower 12 centimeters, and sixty-five of these in the last 6 centimeters. The symptoms in these cases extended in duration from a few hours to fifteen years.

The young woman whose condition is next described furnishes a typical case.

CASE 2.—A woman, aged 21, twelve hours before admission to the hospital, was seized with a sharp pain in the right lumbar region, accompanied by vomiting and shock. The pain soon radiated to the groin. The following morning the pain was most severe in the right lower quadrant, and there was an urgent desire to urinate. Urine was scanty. Examination of the bladder revealed edema about a functionless right ureteral orifice. A ureteral catheter encountered an obstruction 2 cm. from the bladder. A roentgenogram revealed the catheter in contact with a small shadow. The ureter was dilated and a small calculus removed with ureteral forceps, with complete relief and no return of symptoms.

CASE 3.—A woman, aged 44, for fifteen years had had pain in the right side of the abdomen, not localized. She complained of indigestion, constipation, flatulency, painful menstruation, and frequent burning urination. She had had a nephropexy, an appendectomy and a ventral suspension; the right ovary had been removed, the bladder irrigated, and medical treatment given, with no relief. Investigation showed a calculus lodged in the right ureter, at the pelvic brim, with pyelonephritis. Removal of the calculus gave partial relief of symptoms.

Between these two extremes were all types and degrees of abdominal symptoms, but pain was a fairly constant factor in all cases of ureteral calculi.

Eighty-six of the 107 cases of ureteral calculi gave a history of pain on the affected side, 4 of referred pain on the opposite side, 65 had a definite colic, and 45 had had from two to eleven attacks; 35 gave a history of having previously passed calculi.

Of the 65 cases of calculi lodged in the last 6 centimeters of the ureter, 56 complained of urinary symptoms.

Cystoscopic examination revealed the calculus lodged in the mouth of the ureter in 4 cases. Edema about the orifice was present in 47 cases. A deflection of the stream of urine from the ureteral orifice was noted in several cases in which the calculus was lodged in the intramural portion of the ureter. The urine showed pus cells or blood cells in 81 cases;

was normal in 22 cases. Crystals were noted in 18 cases; colon bacilli showed a growth in 62 of 78 cases in which a bacteriologic examination was made.

In 75 per cent. of the cases a definite obstruction, partial or complete, was evidenced by passing ureteral catheters and bougies. In 11 cases the calculus could be located by palpation through the vaginal vault and in four males by rectal palpation.

No roentgenograms were taken of 16 patients who passed calculi subsequent to the cystoscopic manipulation. In the remaining 78 cases a roentgenogram was made with opaque catheters or bougies in position. A positive plate was obtained in 56 cases. The 22 patients not showing a shadow passed calculi following manipulation. These calculi were all small, and were either phosphatic or uric acid stones. A collection of crystals causing a definite colic was present in six cases. A complete obstruction was encountered in each case, and was relieved by intra-ureteral manipulation.

I have made it a practice for the past five years to boil the catheters and bougies, thus rendering the bougie soft enough to pass through almost any kink, or to coil about a calculus. Often the tip of the bougie is bent so that it is hooked, and by passing the bougie, twisting it as it advances, the calculus, which would often otherwise be passed by, is encircled by the bougie. In this manner, with stereoscopic roentgenograms to eliminate extraneous shadows of phleboliths, calcareous glands, atheromatous patches, enteroliths and gallstones, a diagnosis may be made in two thirds of our cases. In the remaining third, a ureterogram, the calculus being coated with collargol, or the employment of wax-tipped catheters, may be necessary, and all methods may be negative.

I have no doubt that in some of our cases which were passed by as negative, with ureters free to a No. 7 F. catheter, with negative urine and roentgenograms, a calculus may have been lodged in a sacculation of the ureter which has since caused symptoms. I am inclined to believe that the wax-tipped catheter should be used more frequently in these negative cases, and it is wise to have all patients report for subsequent examination.

A differential diagnosis between ureteral kinks, urinary tuberculosis, renal tumor, and stone often may be difficult, and may be made only by repeated examinations.

Calculi in the lower ureter may cause symptoms so like appendicitis that it has almost become routine to pass a ureteral catheter in all cases of right-sided pain. Pelvic disease and acute intestinal lesions in connection with calculus in the lower ureter, gallstone colic, acute gastric and intestinal conditions, must be excluded in calculi lodged in the upper ureter and kidney. This should always be possible with the means at hand, although the possibility of the presence of more than one lesion should be borne in mind.

The treatment of calculi of the upper urinary tract can now be laid down on definite principles.

A renal calculus remains in the kidney and increases in size, acting as a menace to the kidney and to the patient, or it passes into the ureter. If it remains in the kidney it should be removed, unless there is contraindication to operation from the condition of the patient, or of the opposite kidney, and the sooner it is removed the better. By its remaining, more or less of the kidney will be ultimately destroyed. When the kidney destruction is advanced, as proved by pyelogram and functional tests, or when many calculi are present throughout the kidney, a nephrectomy may be necessary, as in four of the cases of this series. In cases of large branching calculi the kidney may have to be split, as in two cases. The remaining cases can be relieved by pelviolithotomy.

If the calculus passes into the ureter, and does not enter the bladder after manipulation with ureteral catheters, bougies, and dilatation of the lower ureter, it should be removed. That the majority of ureteral calculi will pass, certainly after manipulation, is proved by this series. Ninety-two of 107 calculi lodged in the ureter were passed subsequent to or removed by cystoscopic manipulation. Only fifteen were removed at operation.

Calculi should not be allowed to remain in the ureter too long. Stricture of the ureter, or damage to the kidney from back pressure and infection, will often be the result. The sooner the patient is seen after the initial attack of colic, the better the chance of assisting the passage of the stone.

While all methods of manipulation and injection have been applied, dilation of the lower ureter and manipulation of the calculus with catheter and bougies, in an attempt to loosen and change the axis, was deemed of advantage. There is no doubt that this is worth repeated attempts. Several calculi have been followed with roentgenograms in their descent after manipulation, showing the advance of the calculus with each attempt. This process has been repeated as many as eight times, but the first few attempts will usually be successful if the calculus is going to pass. An attack of colic is often brought on at the end of the manipulation, and denotes that the calculus has shifted its axis and is obstructing the ureter. Large quantities of water will supply the pressure above, and the stone will be passed.

A method which has proved successful, even in as large a culculus as the one exhibited (3.5 by 1 cm.), is to hook the end of the ureteral bougie and twist the bougie as it is advanced along the ureter, coiling it about the calculus and then applying traction. A calculus was extracted two weeks ago in this manner. This patient had undergone a ureterotomy for a calculus one quarter the size, lodged at the pelvic brim. A fistula resulted which healed only after inserting an indwelling ureteral catheter, which was left in position for ten days. A diverticulum formed at the point at which the calculus had been lodged. Twelve calculi have since formed in this pouch, descended into the lower ureter, and have been extracted with ureteral forceps, or passed after intra-ureteral manipulation.

How large a proportion of these ureteral calculi would have passed had nothing been done, it is impossible to say; but it is probably fair to assume that 50 per cent. would have been recovered. Only six patients giving a history of ureteral colic, negative at examination, returned with a history of subsequent attacks and passing a calculus.

Fifteen of the calculi removed at operation were approached extraperitoneally, and one transperitoneally.

There were two deaths out of the forty-three patients operated on for renal calculi, both caused by uremia, in bilateral phosphatic calculi. The operation in each instance was undertaken against advice. One patient with ureteral calculus died six weeks subsequent to operation. The cause of death could not be ascertained.

In this review of 198 cases of lithiasis, several points are worthy of note with regard to the forty-four cases of vesical calculi. A definite history of renal colic, with relief of pain without passing the calculus, was given in fourteen cases, and in the remaining thirty it was found that the bladder was the seat of an infection and was carrying residual urine. The cause of the retention was prostatic obstruction in the males, and cystocele in the females —a rather convincing argument that infection and urinary stasis play an important rôle in their formation.

The diagnosis of vesical calculus should be simple. Seldom is it impossible to pass a small cystoscope into the bladder and make a diagnosis by sight. A roentgenogram, in the absence of a cystoscopic examination, is often sufficient.

Of the forty-four cases, the calculi were crushed and evacuated in thirty-three, and removed by cystotomy in eleven cases. Litholapaxy is still an important procedure in cases not requiring an operation on the bladder or prostate, and when supplemented by the use of the cystoscopic lithotrite, should be the method of choice more often than it is.

Prostatic calculi, the result of long-standing prostatic infection, were found in three cases. The diagnosis was easily made by palpation. Undoubtedly they are occasionally overlooked, the diagnosis of malignancy being made. More frequent roentgenograms in patients giving prostatic symptoms of long standing might disclose more cases of prostatic calculi. The treatment is by prostatectomy.

One case of calculus in the seminal vesicle was noted, and a renal calculus with a clear history of colic followed by retention showed the calculus lodged in the prostatic urethra. This was dislodged with forceps applied through the endoscopic tube, and was passed by the patient.

RECAPITULATION

Intestinal stasis is an important predisposing factor in the formation of urinary calculi. Urinary stasis and infection are immediate predisposing factors. Renal mobility plays an important rôle in this consideration.

Renal calculi may be single or multiple; small or large; unilateral or bilateral; located in the cortex, the pelvis or a calyx; or they may be branching, completely filling the cavity of the kidney.

Local symptoms may be absent, slight, or acute. Physical signs may be absent or definite. A diagnosis of the presence of a calculus should be made by cystoscopic and roentgenographic methods. Contact of the tip of a roentgen-ray bougie will verify the diagnosis in many cases of renal calculi, but may have to be supplemented by pyelograms, not only to locate exactly the stone in the kidney, but also to show the extent of kidney destruction. Data so obtained make it possible to outline the operative procedure which will result in a cure, and after-care may prevent recurrences.

Ureteral calculi are common. They may give rise to indefinite abdominal symptoms, or to typical colic. Fifty per cent. of ureteral stones will pass; 75 per cent. will be passed following intra-ureteral manipulation, which consists in dislodging the calculus and dilating the ureter below.

Vesical calculi are comparatively rare, owing to earlier diagnosis and the better treatment of vesical obstructions. When found, they are smaller than formerly, owing to the earlier diagnosis, and can often be removed by litholapaxy, unless a prostatectomy is necessary.

Prostatic calculi should be suspected in long-continued prostatic suppuration. They should be diagnosed early and removed by prostatectomy.

40 East Forty-First Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CALDWELL, YOUNG, JR., AND BUGBEE

DR. HENRY K. PANCOAST, Philadelphia: After Dr. Caldwell's numerous references to the unquestioned value of the roentgen diagnosis of urinary calculus, all must agree that a roentgenographic study should be made in every case in which calculus is suspected. A careful examination should be made of the entire tract, for the reason that a stone may not be where it is suspected, may be on the side opposite to the symptoms, or there may be calculi on both sides. In the second instance the stone may not be found, and in the third, the patient's life may be endangered by operation if only one kidney or ureter has been examined. Even though a calculus shadow is found only on the side opposite to the symptoms, a small uric acid stone or one hidden by bony structures may be present and missed and be accounting for symptoms.

When one considers the numerous sources of error it is remarkable that the percentage is so small, as Dr. Caldwell has stated. Most of them have already been alluded to in the papers, but a few have not. The most important and most frequent is careless or faulty preparation of the patient. Adequate preparation means the withdrawal of food for nearly twenty-four hours before the examination, complete evacuation of the intestinal tract to eliminate both fecal contents and gas, and the withdrawal of drugs, especially in pill or tablet form. Possibly salol is the worst offender. Of course, foreign bodies in the intestinal tract other than pills form a small percentage of sources of error. Dark moles on the back constitute a well known source. Phleboliths in the pelvic veins are extremely troublesome and cannot always be eliminated even by the ureteral catheter and stereoscopic plates. Calcified mesenteric glands frequently give trouble, especially when near the renal region.

The last essayist mentioned fecaliths, and when these are in an inflamed appendix close to or adherent to the ureteral region they may be misleading clinically and roentgenographically. In one instance a dermoid cyst containing a single tooth and pressing on and obstructing a ureter led us to a diagnosis of a ureteral calculus because of the tooth shadow in the ureteral line. Finally, many stones, especially uric acid calculi, may be hidden by the bony parts or may not be seen in very stout persons.

DR. W. F. BRAASCH, Rochester, Minn.: Because of this obscurity of symptomatology the following rules have been made at the Mayo Clinic:

Roentgen-ray examination is made (1) when abdominal pain is not definitely localized; for example, in the gall-bladder, the appendix or the pelvis; (2) when, though the pain is definitely localized in these organs, there is pus or blood or a past history of pus or blood in the urine, and (3) in the absence of abdominal pain, if there is a past history of pus or blood, or if microscopic pus or blood is found in the catheterized specimen.

The leaded catheter is of value in the diagnosis of ureteral calculus only when the calculus is 2 cm. or more away from it and when it is in close apposition and cannot be passed beyond the calculus. When the leaded catheter is in close apposition to a suspected ureteral shadow it is of little diagnostic value. Nor does a stereoscopic examination help much, because, even though the stereoscopic examination reveals that the leaded catheter is a centimeter distant from the shadow, it does not mean that the shadow is extra-ureteral.

In such doubtful cases a more exact method of interpretation is available in the ureterogram. This method should be employed only when others have failed, and when the introduction of the catheter is not obstructed. The use of the ureterogram is restricted because the procedure is not without danger. Any fluid injected beyond an obstruction, whether it be boric acid solution, silver or thorium, will cause damage to the parenchyma of the kidney unless drained out. If an opaque medium is injected beyond an obstructing stone in the ureter, a great deal of trouble will result in a small percentage of cases, so much so that the kidney may have to be sacrificed. Therefore, a ureterogram should usually not be made unless the catheter can be passed beyond the shadow and the injected fluid can be removed. Of the various solutions, thorium is undoubtedly the best, because with careful technic it can be removed. The catheter should be allowed to remain for a few minutes after washing out the renal pelvis.

Pyelography has also proved to be a valuable method in the diagnosis of shadows situated in the renal area. It may be used more freely in the pelvis of the kidney because the fluid is seldom obstructed by a stone. Further, pyelography is of value not alone in the diagnosis of shadows in the kidney, but also in the localization. Those of you who have had experience in searching for a stone in a large, congested kidney will appreciate any effort made by the diagnostician to localize exactly any small shadow in the kidney.

DR. HERMAN L. KRETSCHMER, Chicago: The stereoscopic pictures with shadowgraph catheters are of value in a certain percentage of cases. The stereoscope will show in a certain number of cases a definite interval between the suspicious shadow and the catheter. I agree with Dr. Braasch that in some cases the stereoscope will not help out. In those cases the ureterogram is in perfect order. In the doubtful cases it would be well to use some silver salt instead of the thorium in making the ureterogram. Kümmel in Hamburg first called attention to the fact that shadows were made more positive by silver salts.

Dr. Bugbee's statement, I think, was a little bit too conservative when he said that about 50 per cent. of these stones can be passed or removed by noncutting operations. The percentage is much higher. Probably all of these ureteral stones which have not remained in the ureter so long as to produce a stricture can be worked down or passed by the use of papaverin and oil injections. Thus far I have been rather successful. The idea of Dr. Bugbee of turning the catheter around the stone and pulling it out is rather unique. I wish in closing he would tell us just how he curls the catheter around the stone.

The point has been emphasized several times that the entire urinary tract should be roentgen rayed. Frequently patients have just one part of the urinary tract rayed and they are operated on after a diagnosis made from one picture. I have in mind two patients who had been operated on elsewhere and a kidney removed, and they have calculi now in the remaining kidney. It would be interesting to know whether they had bilateral stones in the first place, or whether the remaining stone has formed in the kidney since operation.

DR. ABRAHAM HYMAN, New York: In a series of seventy-four cases of ureteral and renal calculus we have had 10 per cent. of negative roentgenograms. In vesical calculus more than 61 per cent. of the stones failed to show. A large number of these negative roentgenograms were in prostatics, which probably accounts for this high percentage. In thirty-four of the seventy-four cases of ureteral calculus the ureteral catheter was obstructed at the site of the stone, and in 50 per cent. of these cases there was a considerable difference in the output of indigocarmin; it was either absent or considerably diminished.

As regards the wax tipped catheter, it was of considerable value in but one case. In this patient, a rather stout woman, there were three negative roentgenograms. She had pus in the urine and radiating pain in her side. The wax tipped catheter showed distinct scratch marks on two occasions.

During the past few years three patients have been operated on in the service for renal calculus in which most of the findings were considered positive. The Roentgen ray demonstrated distinct shadows in the renal region. Unfortunately, the symptomatology and the ordinary methods of examination were thought to be so characteristic that other methods, such as pyelography, the wax tipped catheter and stereoscopy, were not employed. At operation there was no calculus to be found in any of the three cases. In two, we could distinctly feel retroperitoneal calcified glands which undoubtedly cast the shadows. In the other case the symptoms were found to be due to a twisted ovarian cyst. This was not discovered until the patient returned to the hospital six months later, complaining of the same symptoms. She was operated on and a twisted ovarian cyst was found.

Concerning urinalysis, we have had a few cases of renal and ureteral calculus in which the urine examination was entirely negative—no pus or red blood cells—so one cannot rely absolutely on negative urinary findings.

DR. JAMES W. HUNTER, Norfolk, Va.: As a roentgenologist I have made about 1,200 examinations. Three cases were most remarkable. A man of 45 whose only complaint was night sweats showed no emaciation and had no cough. An examination of his right kidney showed the most beautiful growth of dumb-bell and mushroom kidney stones that I have ever seen and its removal effected a complete cure. A woman presented all the typical symptoms of kidney colic. The kidney was negative, but at the ureteral orifice was found a shadow typically cigar shaped. Cystoscopic examination and the passage of a bougie showed that the shadows coincided. She was operated on by a prominent surgeon and nothing was found. She was examined about a year afterwards in consultation with another surgeon. The same symptoms and the same shadow were found. On operation nothing whatever was found near the ureteral orifice. The ureter was dilated and inflamed. The cigar-shaped calculus was found in the pelvis of the kidney. When the woman was up and about the calculus would descend to the lower end of the ureter, but when she remained in bed it worked back up to the pelvis. This woman is well now.

DR. H. A. FOWLER, Washington, D. C.: It has been definitely brought out that there are no pathognomonic signs or symptoms of stone in the kidney or ureter. A stone may be present in the kidney without giving rise to any symptoms whatever, either on the part of the kidney or of any other organ.

On the other hand, there may be no signs or symptoms referable to the kidney itself, the seat of the disease, but the symptoms are entirely abdominal, or referred to some abdominal organ. This has been shown by the statistics of Braasch and Cabot particularly.

The demonstration of the presence of a stone in the ureter or the kidney is only the first step in the diagnosis. It is important that the diagnosis should be made complete. That means, first, the location of the stone. Is the stone in the kidney, in the pelvis, in the calices or in the ureter? Is there more than one stone? Is the stone in the upper or lower pole? If we can locate the stone definitely in this way the operative procedure is simplified and the trauma resulting from operative interference is reduced to a minimum. Instead of doing as the general surgeon has been doing in the past, exploring the kidney by making a wide section, if we know where the stone is situated we can make a small incision through the capsule over the stone and extract it through the small incision. This means much less trauma and a much simpler operation.

It has not been my experience to meet with as large as 12 per cent. of cases in which no blood or pus was found on repeated examination of a centrifuged specimen of urine. I was taught to believe that in the majority if not all cases of stone in the kidney or ureter if repeated examination of a centrifuged specimen was made blood would be found, and that has been my experience. I recall only one case, that of a stone in the upper calyx of the kidney, in which repeated examinations failed to show the presence of a few red blood

cells. There is no reason to doubt his statistics, but I simply mention my personal experience.

DR. G. G. SMITH, Boston: In regard to Dr. Fowler's point about the presence of blood in the urine, I have lately noticed that in the routine examination of urine specimens from patients in the women's genito-urinary outpatient clinic at the Massachusetts General Hospital we have had an almost constant report of a few red blood cells, and that has happened so often that it has made me feel that in a thoroughly centrifuged specimen examined by a conscientious, thorough house officer a few red blood cells will almost always be found. I should like to hear some opinions on that. Some of these patients whose urine showed the red blood cells certainly had nothing wrong with the genito-urinary tract that we could discover in any other way, and there were too many of those cases showing red blood cells and nothing else for one to say there was a stone which could not be detected.

I have injected papaverin into the ureter once in each of four cases of ureteral calculi. In two cases the calculi were passed two weeks after the injection. The other two patients, the last time I saw them, had not passed their stones.

DR. A. M. WOSE, Syracuse, N. Y.: Recently six exposures of a calculus in the bladder were made, with negative findings. Examination with the cystoscope readily showed the calculus. This caused a little controversy with the roentgenologist, and in order to appease him I suggested after the extraction of the stone that I would be glad to make a little investigation with this calculus on a plate with the electrode at a distance of 18 inches. He did that, with negative findings. After that I suggested that he take a picture of his hand with the calculus on the hand, with the electrode 18 inches above, which he did, and there was no shadow of the calculus. Then I said the investigation ought to be chemical. It proved to be a pure uric acid stone.

DR. V. D. LESPINASSE, Chicago: In this connection I should like to report some work that has a bearing along this line. I started out to determine the changes that occur in the kidney following obstruction from a stone. I found that complete obstruction caused very rapid and severe changes. When the obstruction was partial the changes came on slowly and involved the ureter primarily. From that it was changed over to a clinical problem. By introducing a little stick of wood it was found that we could obtain a dilatation of the ureter, beginning at the lower end, and as time went on, going up to the kidney and ultimately involving the kidney; but it takes from ten to twenty days before any change occurs in the pelvis of the kidney. In that time there will be a dilatation of the ureter to about two to three times its normal diameter. Then after this work was done on the animals it was changed over and this little plug was adapted so that it could be introduced through the cystoscope and applied at the clinic. The plug was made from a small piece of laminaria with an opening through it. Inserted through the cystoscope and left in place, the plug swells. The opening in the plug also swells, so that if it is a No. 6 when it goes in, in an hour or two it swells to a No. 15, varying somewhat. The urine trickles through the hole and the ureter begins to dilate above the plug. The procedure is painless. Our clinical experience with it so far has been limited to one case in which there was a stone about a third of the way down the ureter and two stones in the kidney. We put the plug in place and left it there for a day, and the day following the man passed his stone. Then we sent him out to ride the roads in a well known automobile which the doctors commonly use and he shook the two stones into his ureter. He came back and we put the plug in his ureter again and he passed the two stones.

DR. B. S. BARRINGER, New York: I should like to report just one unusual pyelogram result which misled us a great deal. The patient came to the Bellevue Hospital with symptoms of stone. A roentgenogram was made and a nest of three or four stones was found just above the crest of the ilium. We cystoscoped him and found an inflamed bladder and two ureters, and we injected thorium into the suspected kidney pelvis, with the result that we had a beautifully dilated pelvis up under the ribs. The thorium was plainly outlined, and the nest of stones down about 3 inches from this dilated kidney pelvis with no connection between the two. We thought he had double ureters and a double renal pelvis and that we had missed one of the ureters on cystoscopy. At the operation we looked for two ureters but did not find them. We found a large, dilated pelvis with a stone at the lower end. The thorium probably had not had time enough to diffuse through the entire pelvis.

DR. J. E. BURNS, Baltimore: About 30 per cent. of the calculi are missed in the plain roentgenogram. I have already called attention to the fact in several publications that the ureteral calculi missed in the plain roentgenograms are brought out by the thorium solution, either by the adhesive qualities of the solution or by its comparative density, or by the fact that the thorium solution is absorbed by the calculi. We have used this solution since its introduction in the Brady Clinic about two years ago in, I suppose, 400 cases. We have seen no ill results in any case. None of the cases have shown any necrosis or any destruction of renal parenchyma due to retention, which latter occurs very rarely, if at all.

It is essential that the solution be allowed to flow in while the roentgenogram is being made, so that the pelvis and ureter may be fully dilated. On repetition of the roentgenogram in such cases it might be well, in order to insure complete distention of the pelvis, to lower the head of the table and allow the solution to flow in by gravity. If the first attempt is not good, and if the ureterogram is not clear in the lower portion, the position, of course, should be reversed, and it will be found in practically every instance that the ureteropyelogram will be satisfactory.

Another important thing in the diagnosis of ureteral calculus is to employ the wax-tipped catheter. This, together with the pyelogram and the plain roentgenogram, is employed as a routine measure in the Brady Clinic.

DR. A. J. CROWELL, Charlotte, N. C.: I do not believe the presence of blood in a centrifugalized specimen of urine obtained by ureteral catheter means as much as some would seem to think. It is difficult, yes, almost impossible, I believe, to get urine with the ureteral catheter without getting some blood in a centrifugalized specimen of urine thus obtained. The presence of pus, of course, is a different thing. Personally I do not lay much stress on the presence of blood, but the presence of pus is very significant.

Just a little off the subject, and yet brought out by Dr. Bugbee in his paper, is the removal of stone from the ureter by the use of the ureteral catheter. About three years ago while endeavoring to remove a recently impacted stone from the ureter it occurred to me that it would be common sense to inject cocain or novocain into the ureter to deaden the sensation and thus allow the ureter to relax and assist the stone to pass out. This procedure was carried out and the next day the stone was found in the patient's bladder. Of course, this stone may have passed if nothing had been done, but it encouraged trying the plan in other cases. Since that time I have had twenty-three or twenty-four cases and have had to operate on only two patients for the removal of ureteral stone. I am convinced now that if I had persisted then (that was in the beginning of this work) as I do now I would have removed those two. It may take a number of treatments to remove stones in this way, but I believe that every recently impacted ureteral stone can be removed in this way if we get at it in time. I removed three from one ureter but it required six or eight treatments. If we will only persist in our efforts with the cystoscope and some form of local anesthesia, I believe we will seldom fail to remove these stones.

DR. C. M. HARPSTER, Toledo, Ohio: I wish to endorse the position taken by Dr. Smith and Dr. Fowler. I believe if we make careful investigations of the urine we will, with the possible exception of a few cases, find microscopic blood. I think this is our most important diagnostic point clinically. The possible exception is in those cases in which there has been an occlusion of the ureter from impaction of the stone in the ureter or in the pelvis of the kidney; and in those cases in which there has been complete exclusion of the ureter, of

course, we would not find microscopic blood; but in my experience I have, in a large number of cases, found microscopic blood after painstaking investigation.

Another point is in regard to reflex anuria which follows cases in which there is a single impacted stone on one side. It has been my experience in those cases in which there is anuria lasting three, five, and, in one case, ten days, that we will, on careful and repeated roentgen-ray examinations, find an impacted stone on the other side. In every case in which there have been bilateral calculi reflex anuria has not been found present. In those cases, I believe, we should make repeated searches to locate the stone on the other side. One of my old preceptors, Professor Israel, laid particular stress on this point, and in two cases I believe we were able to save the patients' lives. Where there is complete anuria differentiated from nephritis, in nephritis we will at least have a teaspoonful of urine excreted; that is, we will not have in any nephritic condition a complete and absolute anuria; and so by remembering this point I was able, in two cases of ureteral calculus in which experts had made a diagnosis of nephritis with complete suppression of urine, to find bilateral ureteral calculi.

DR. EDWARD L. YOUNG, JR., Boston: Dr. Bugbee's trick of coiling a ureter catheter around a stone is a very pretty trick and a great help, provided it comes out all right. One case in connection with it might perhaps serve as a warning in the use of the procedure—a case in which a ureteral stone was hooked in that fashion, but then the fisherman was not able to bring in the fish, and for over an hour tried to get the catheter out. So I think there is a warning in regard to the use of the ureter in that condition, on account of the possibility of breaking off the catheter and also of getting the catheter up and having it caught there.

I wanted to emphasize what has been already emphasized, the indefiniteness of symptoms in the majority of cases of renal stone. Also, typical symptoms do appear, including blood and pus, without any calculus being present, and especially the symptom of pain. I think all statistics of pain in connection with calculus show that it is almost always indefinite and often misleading.

I have not looked up the cases at the Massachusetts General Hospital in regard to crossed symptoms, but I can only remember having seen two cases within a comparatively recent time, and I should like to register my opinion that a damaged kidney on one side without any symptoms, and a normal kidney on the other which seems to have the symptoms, is a comparatively rare condition. I do not mean that symptoms may not be mainly on the undamaged or slightly damaged side, but I think a normal kidney on one side showing symptoms and a damaged kidney on the other not showing any symptoms is, at least in my experience, rare.

Then the question of the removal of ureteral stones without operative procedure which has been spoken of so enthusiastically by every one today—I do not know whether we in Boston are slower than the rest of you in making a diagnosis, or less skilful in the use of the operating cystoscope, but we see large ureteral stones that I am convinced it would be impossible to remove by any method short of the open operation. Likewise, we fail to get stones of moderate size out in a percentage of cases larger than that spoken of today.

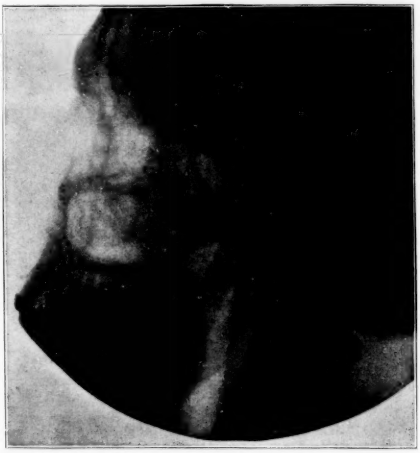

Fig. 1.—Clinoid processes nearly fused, with apparent narrowing of sella turcica in a case of diabetes insipidus.

SPINAL PUNCTURE IN DIABETES INSIPIDUS

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Since the discovery by Magnus and Schaefer[1] in 1901 of the diuretic action of extracts of the posterior lobe of the hypophysis, attention has been directed to that organ as an important factor in the causation of diabetes insipidus. Frank,[2] in an important article published in 1912, reviewed the literature then existing on the subject and made a strong plea for a consideration of the relationship between the hypophysis and diabetes insipidus. Numerous writers already had emphasized the fact that lesions of the brain which involved the vicinity of the hypophysis were often accompanied by polyuria without sugar. Oppenheim,[3] in thirty-six cases of basal syphilitic meningitis, observed polyuria in twelve. Two of these showed at necropsy a gumma of the optic chiasm and hypophysis. Kruse,[3] in a study of thirty cases of bitemporal hemianopsia, observed diabetes insipidus in seven; and Spanbock and Steinhaus[3] mention its occurrence in eleven of fifty cases of bitemporal hemianopsia. Polyuria associated with metastatic carcinoma involving the hypophysis or its region, secondary to carcinoma of the breast, is a fairly frequent occurrence. Cases have been reported by Simmonds,[4] Rosenhaupt,[5] Miller[6] and von Gierke.[7] Recently Sekiguchi[8] has described two additional cases. Cushing's experiments in 1913 led him to conclude that there was a strong "argument in favor of the view that an actual disturbance of the pituitary body itself, rather than the stimulation of some predicated diuretic center in the remote third ventricle surmounting the growth, was the inciting cause of a condition worthy of the designation of diabetes insipidus." Lewis and Matthews[10] in 1913 concluded from their experiments that diabetes

1. Magnus and Schaefer: The Actions of Pituitary Extract Upon the Kidney, Jour. Physiol., 1901, 1902.
2. Frank, E.: Ueber Beziehungen der Hypophyse zum Diabetes insipidus, Berl. klin. Wchnschr., 1912, **49**, 393.
3. Quoted by Frank (Note 2).
4. Simmonds: Hypophysis und Diabetes insipidus, München. med. Wchnschr., 1913, **40**, 127.
5. Rosenhaupt, H.: Berl. klin. Wchnschr., 1903, p. 893.
6. Miller, J. L.: The Relation of the Hypophysis to Certain Clinical Manifestations and the Therapeutic Applications of Its Extract, Am. Jour. Med. Sc., 1916, **152**, 549.
7. Von Gierke, E.: Hypophysis und Epiphysis bei Diabetes insipidus, Verhandl. d. deutsch. path. Gesellsch., 1914, **17**, 200.
8. Sekiguchi: Hypophysial Disorder in Mammary Cancer and Its Relation to Diabetes Insipidus, Ann. Surg., 1916, **63**, 297.
9. Cushing, Harvey: Concerning Diabetes Insipidus and the Polyurias of Hypophyseal Origin, Boston Med. and Surg. Jour., 1913, **168**, 901.
10. Lewis, D., and Matthews, S. A.: The Pars Intermedia: Its Relation to Diabetes Insipidus, Tr. Path. Soc. Chicago, 1913, **9**, 16.

insipidus is probably dependent on the hypersecretion of the diuretic substance of the posterior lobe which is secreted by the epithelial covering known as the pars intermedia. Falta,[11] however, warns against a too hasty conclusion that lesions of the base of the brain which induce polyuria do so always by mediation of the hypophysis, although he discusses at length the possibility that such may be the case.

Several cases of diabetes insipidus of which the onset occurred after a trauma to the head are in the literature. Doubtless, at least a temporary polyuria will be found to be very common after head injuries, especially basal skull fractures, if attention is more frequently directed to the output of urine. Mohr[12] has recorded a case which developed about three weeks after a basal skull fracture, and Kleeblatt[13] has described one occurring on the third day after a similar lesion. French and Ticehurst[14] also observed a case of diabetes insipidus which had its origin in a fracture (through the sphenoid). Recently I have seen a case of fracture of the skull in which the roentgenogram clearly revealed the line of fracture extending into the sella turcica (Fig. 3). During the first twenty-four hours the amount of urine passed was 40 ounces (1,280 c.c.). During the second day the total amount increased to 130 ounces (4,160 c.c.), and on the third day 110 ounces (3,520 c.c.) were passed. Two days later the total output had returned to normal. At no time did the urine show any abnormal constituent. I[15] have recently reported another case in which a total output of 170 ounces (5,500 c.c.) was passed during a twenty-four hour period, following a gunshot wound of the head which severed the optic nerves, probably at the chiasm, with probable resultant injury to the hypophysis. This urine was of a specific gravity of only 1.002, and contained no sugar.

Fig. 2.—Drawing which shows that it is possible for the clinoid processes to be actually touching or fused without any actual diminution in volume of the sella turcica.

The suggestion of the hypophysial origin of diabetes insipidus led somewhat empirically to the employment of extracts of hypophysis therapeutically. Numerous cases are now in the literature reporting markedly beneficial results, especially when the extract has been given intravenously and also even when given hypodermically. Recently Hoppe-Seyler[16] has reported a case of a man, aged 25, with diabetes insipidus who had no evidence of syphilis and no roentgen evidence of any lesion of the hypophysis. Hypodermic injections of hypophysis extract, however, resulted in the restoration of the amount and concentration of the urine to normal. When given by the mouth, no appreciable effect was noticeable. The administration of atropin diminished the volume of urine, but also kept back the solids, whereas with hypophysis extract the solids appeared in normal concentration despite the marked reduction in volume. He considers that the therapeutic results are as striking as those obtained in the treatment of myxedema with thyroid extract. Konschegg and Schuster[17] have also reported an instructive case in which the administration of hypophysis extract to a patient with diabetes insipidus resulted in a return of the urinary conditions and of the water intake to normal. They report that the findings here are in contrast to those obtained when the extract is administered to normal individuals. With the latter, following the injection the decrease in the excretion of water is accompanied by a decrease in the concentration of the solids.

The case reported below is of great interest, not only because it illustrates a type of diabetes insipidus probably induced by disturbance of the hypophysis through an increased pressure of cerebrospinal fluid, but also because *the relief of pressure by spinal puncture was immediately followed by a cessation of the polyuria and other symptoms.* So far as I have been able to learn from the literature, there has been only one other case of diabetes insipidus in which spinal puncture was made. That was a case reported by J. B. Herrick[18] in 1912. In that case the lumbar puncture was made simply for the purpose of obtaining some spinal fluid and with no idea of improving the symptoms; but following the puncture, the amount of urine dropped from 10 liters to 1 liter, and the specific gravity correspondingly changed from 1.001 to 1.031.

REPORT OF CASE

June 22, 1916, a man, aged 24, consulted me because of dizziness, headache, extreme thirst and the passing of enormous quantities of urine. He stated that, March 13, while at work in a cement plant, he sustained an injury to his chest as a result of being accidentally struck with an iron bar. He thinks he was unconscious for a few minutes, although he knows of no injury to the head. He stopped work and went home, but was not compelled to go to bed. A physician told him that he had a fracture of the sternum and of two ribs on the left side. He reported for work on the next evening, but was sent home again and remained away from his work until April 4. Within a day or two after the injury he noticed that he was markedly constipated so that he could hardly get a bowel movement even with cathartics. He had no headache nor dizziness until after he resumed work. Then during the first week of April, he began to notice severe headache and dizziness every day. These symptoms became progressively worse. The headache was chiefly frontal and in the temporal regions, and also sometimes "behind the eyes." It was described as resembling sharp, cutting pains, sometimes going up through the ears. Headache was always worse after

11. Falta: The Ductless Glandular Diseases, Philadelphia, P. Blakiston's Son & Co., Ed. 2, p. 322.

12. Mohr: Diabetes Insipidus nach Schädelgrundbrüche, Monatsschr. f. Unfallheilk., 1912, **19**, 362.

13. Kleeblatt: Diabetes insipidus nach Schädelverletzungen, Med. Klin., 1915, **11**, 915.

14. French, H., and Ticehurst, C. B.: Relation of Traumatic Diabetes Insipidus to Glycosuria, Tr. Clin. Soc., London, 1906, **39**, 117.

15. Graham, E. A.: Diabetes Insipidus as a Sequel to a Gunshot Wound of the Head, Ann. Surg., 1917.

16. Hoppe-Seyler: Beziehung des Diabetes insipidus zum Hypophyse und seine Behandlung mit Hypophysenextrakt, München. med. Wchnschr., 1915, **62**.

17. Konschegg and Schuster: Deutsch. med. Wchnschr., 1915, **61**, 1091.

18. Herrick, J. B.: Report of a Case of Diabetes Insipidus with Marked Reduction in the Amount of Urine Following Lumbar Puncture, Arch. Int. Med., July, 1912, p. 1.

excitement or hard muscular work. It was not always present all day. Nausea and vomiting were rarely present, but when nausea did occur, it was always worse at breakfast time. Reading always aggravated the dizziness. No disturbance in power of vision had been noted. The only relief possible from the headache and dizziness was in lying down.

Beginning with the latter part of April, marked polyuria set in. This became progressively worse up to the time I first saw him. During this time he had to get up at night to urinate, frequently as often as six times. During the day he passed urine as often as every hour or half hour. At each act of urination he passed enormous quantities of urine, without pain or burning. He never measured accurately the amount of urine passed in twenty-four hours, but he estimated it as high as 10 or 12 quarts daily. During a period of a little more than an hour while I was examining him, he passed more than a quart. His thirst was insatiable, but his appetite was poor. It was not accompanied by a craving for any special kind of food, such as carbohydrates. He thinks he lost about 25 pounds after his injury.

His previous history was negative except for measles in childhood. He denied any venereal infection. He is the father of a healthy child 1 month old. His family history likewise was of no special importance. His father and mother were both alive and well, the father at 70 years, and the mother at 66. He is one of nine brothers and sisters, all of whom are well.

The examination revealed a fairly well nourished young man who seemed bright and intelligent. Physical examination showed no abnormality of any kind. His vision and eyegrounds were examined by Dr. F. G. Murphy, who reported no abnormality. The blood was practically normal, and the systolic pressure was 120 mm. The urine was clear, slightly acid and of a light straw color. Its specific gravity was 1.001. It contained no albumin or sugar, and practically no sediment except an occasional urate crystal and an epithelial cell. A roentgen examination of the skull revealed a very marked narrowing of the upper margin of the sella turcica (Fig. 1). The distance between the anterior and posterior clinoid processes was only about 2 mm., whereas the normal should be from 10 to 14 mm. He was advised to enter the hospital for several days for examination, but he declined to do so. I then advised that he come to the hospital on the following day for a lumbar puncture and to remain for a few days later. He consented to do so; and on the following day, June 24, lumbar puncture was performed with novocain anesthesia. Immediately after the insertion of the needle into the spinal canal, fluid shot out in a steady stream for a distance of from 8 to 12 inches. Because of the sudden surprising gush, some of the fluid was lost; but a little more than half an ounce was saved. The fluid was still running in a steady stream; but because of fear of too suddenly lowering the intraspinal pressure, the needle was withdrawn. He immediately stated that his headache and dizziness were entirely gone, despite the fact that they had been pronounced before the puncture was made. He was then put to bed; but about four hours later without our knowledge or consent he got up, dressed himself, and walked home, a distance of about a mile from the hospital. On examination the fluid was found to be clear and of a pale straw color. After it was centrifuged, the sediment was found to contain only two cells (mononuclear in type) and no bacteria. It was intended to save some of the fluid for a Wassermann test, but through a mistake in directions it was thrown away. A Wassermann test of the blood, however, was negative.

Fig. 3.—Fracture of skull apparently extending down into sella turcica, and accompanied by marked polyuria.

Because of the brief stay in the hospital it was impossible to make any quantitative studies of the urine; but it is interesting that during the four hours in the hospital no urine passed, the longest interval without urination since the onset of the symptoms. The subsequent history is of great interest. For the next four days after leaving the hospital he suffered with intense headache and dizziness to such an extent that he was bedridden, but the polyuria and thirst remained absent. He passed urine at this time only four or five times within the twenty-four hours. He then returned to the hospital and stayed for five days. During this time the headache and the dizziness gradually disappeared. The volume of urine passed during the twenty-four hours varied between 1 and 2 liters, and its specific gravity varied between 1.020 and 1.028. At no time did it show any abnormal constituent.

September 18, we saw the patient again. He stated then that he had been working since the middle of July. He thought he drank a normal quantity of water and passed a normal quantity of urine. Since the spinal puncture he had not had to urinate once during the night; and during the day he passed urine only three or four times. He had gained 5 pounds since leaving the hospital, but still felt dizzy at times. He stated that in the morning he felt perfectly well, but about the middle of the afternoon began to develop a little headache and dizziness, which continued until his evening meal. Then he would feel well again. He attributed the onset of headache and dizziness chiefly to exhaustion from work.

COMMENT

The apparent chain of events in this case is probably as follows: In some unknown way the accident led to an increase in the amount of intraspinal fluid. This in turn led to symptoms suggestive of intracranial pressure, such as headache and dizziness; and the hypophysis was so affected that polyuria without sugar was induced. The immediate improvement of all the symptoms after the lumbar puncture is striking. The question of how the spinal fluid became so much increased cannot be satisfactorily answered. The roentgen-ray findings are interesting, but probably should not be taken as conclusive evidence that the sella turcica was narrowed to the extent of producing pressure on the hypophysis. Although the normal distance between the anterior and posterior clinoid processes varies between 10 and 14 mm., it is possible for the processes to be actually fused without any appreciable change in the volume of the sella and without any symptoms of pressure, as repeatedly verified at necropsy. Figure 2 shows how, owing to the roughly hexagonal form of the sella turcica in the horizontal plane, the clinoid processes may be actually fused without producing any diminution in volume of the sella. The case here reported tends to support the view of the relationship existing between disturbances of the hypophysis and diabetes insipidus.

An immediate striking relief of symptoms has been obtained by the performance of spinal puncture.

ANAL AND RECTAL FISTULA*

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CHICAGO

In a preliminary report[1] before the American Proctologic Society, at the Detroit meeting, June, 1916, on "Anatomic and Bacteriologic Findings of the Ano-Rectal Region," I called attention to the sinuses and diverticula in this region. It was announced that cocci, and other forms of bacteria, had been found in their walls and contents, and the possible relation to focal infections was pointed out. Since I desire to emphasize the relations between these sinuses and diverticula, and anal and rectual fistula, the present communication is necessarily elementary and textbook-like in character.

A fistula is an infected artificial channel between the skin and the serous or mucous membrane of a normal cavity, or between two normal cavities. It has two or more openings. A sinus, often confounded with a fistula, is an infected artificial channel connecting the skin or mucous membrane with an abnormal cavity. It has, as a rule, one opening only.

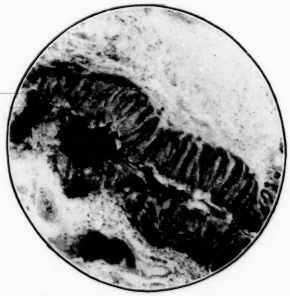

Fig. 1.—Photomicrograph of an infected rectal sinus. The infection has broken through the sinus wall and extended into the surrounding tissues. Compare Fig. 2.

ETIOLOGIC FACTORS

The principal causes of fistula are predisposing (embryologic, traumatic, etc.), and exciting (bacteriologic) conditions.

Embryologic Causes.—The sinuses and diverticula to which I have just referred come under this classification. These sinuses I first noticed many years ago when investigating the structure of the rectal valves, and I referred to them in a paper in THE JOURNAL as "epithelial glands."[2] Later, I frequently noticed the apertures of the sinuses and diverticula during the course of various operations on the lower bowel, and pointed them out to my classes from time to time.

Not long ago, in a patient with hemorrhoids, one aperture was so prominent that a probe was inserted into the lumen for considerable distance. This aroused renewed interest in the subject. Specimens were collected, given to the Medical Research Laboratory of Chicago, and investigations commenced from embryologic, bacteriologic and histologic standpoints.

When the literature was looked up it was a great surprise to find that these sinuses[3] and diverticula had been described by Hermann and Desfosses nearly forty years ago. Some years later they are alluded to in Quénu and Hartmann's book on "Surgery of the Rectum." Since then they have been ignored by all

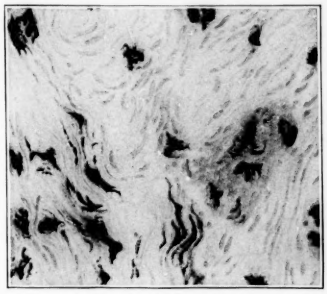

Fig. 2.—Microscopic drawing of a field in Figure 1. It contains colon bacilli, staphylococci and other micro-organisms.

textbooks on diseases of the rectum and those on medicine and surgery. The only reference I have been able to discover of late years is in an article by Johnson.[4]

It is not clear why they have been ignored, unless it is because they have had no pathologic possibilities attributed to them. Yet, as will be seen by Figures 1 and 2, and by clinical experience, they are an exceedingly important factor in disease processes in the rectum itself, primarily, and in constitutional conditions, secondarily.

That an important anatomic fact could, in this scientific age, be disregarded or lost sight of for many years, after being placed on record, and then, without knowledge of its former discovery, be rediscovered and found to be of great importance as a disease-

Fig. 3.—Photomicrograph of a normal rectal sinus in a child 1 day old. The wide mouth of the sinus opening into the rectum should be noted. This sinus extends through the mucosa and submucosa to the circular muscle fibers. In some instances they terminate in mucous glands.

producing factor, is almost unbelievable. However, this anatomic finding, when resurrected, proves to be a vital etiologic factor in the causation of fistula and

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

1. Pennington, J. Rawson: Tr. Am. Proctol. Soc., 1916, p. 38.
2. Pennington, J. Rawson: New Points in the Anatomy and Histology of the Rectum and Colon, THE JOURNAL A. M. A., Dec. 15, 1900, p. 1520.
3. Hermann and Defosses: Compt. rend. Acad. d. sc., Paris, 1880, **40**, 1301.
4. Johnson: Am. Jour. Anat., March, 1914.

other diseases of the rectum, with their metastatic sequelae.

Traumatic Causes.—In this group is included any mechanical injury leading to the formation of a fistula, or that perforates the rectum, connecting it at once with the skin by means of an artificial channel.

Fig. 4.—This sketch is from Ball's book on "Diseases of the Rectum." It shows one internal and numerous external fistulous openings, and doubtless is intended to suggest the formidableness of a fistula. Yet, the gravity of a case, all things being equal, depends much more on the position of the internal than the number of external openings.

Other Pathologic Conditions.—In this list of conditions I refer to proctitis, cryptitis, constipation, hemorrhoids, fissure, stricture, ulceration and other rectal conditions, which favor the invasion of the sinuses and diverticula and perirectal tissues with pyogenic organisms (Figs. 1 and 2). Such conditions constitute a prefistula stage or period, and aid and abet in the development of the infection stage of fistula.

Exciting Cause.—It has been definitely proved that bacteria are the exciting cause of fistula. The rectal sinuses and diverticula serve as catch-basins or traps for the bacteria (Fig. 3). Here they give off toxins, which aid in producing irritation, to be followed by congestion, inflammation and their escape into the surrounding structures, where they are either encapsulated or lead to an abscess.

Should they produce an abscess, it will continue to enlarge, and the pus to burrow in the direction of least resistance until it finally makes its way through the skin or mucous membrane, forming an internal or external rectal sinus; or, by way of the skin and mucous membrane simultaneously, which forms an infected artificial communication between the skin and a normal cavity, as the rectum or other viscus. Such a channel is known as a fistula.

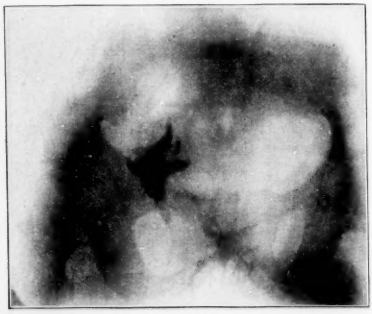

Fig. 5.—Roentgenogram of an anorectal fistula with numerous tracts and external openings. The internal opening is in the posterior quadrant. The patient had been operated on three times by different surgeons. Necrosis of the sacrum, which had been overlooked, was the primary cause.

STAGES IN THE DEVELOPMENT

There are four stages of development, namely, (1) the prefistula stage; (2) the stage of infection; (3) the abscess stage, and (4) the fistula stage.

1. The prefistula stage antedates the stage of the infection, which leads directly to the formation of a sinus or a fistula. A careful examination will show that a very large percentage of fistulas, if not all, are secondary diseases, and that they are preceded in their development by other rectal diseases. From the standpoint of treatment, this is the most important period.

2. The infection stage begins with the invasion of the tissues by pyogenic organisms (Figs. 1 and 2), and continues until the formation of an abscess is inevitable. Authorities tell us that a fistula is due to an abscess; they also state that an abscess is caused by bacteria. Then, is not infection the cause of the fistula, and the abscess one of the stages in its development?

3. The abscess stage commences when suppuration is inevitable, and ends when the pus begins to discharge. It matters not whether this discharge is brought about by ruputre of the tissues or otherwise. The location of the abscess depends on the position of the atrium of invasion; to what point the sinuses or diverticula and the lymphatics lead; the relation of the fascial planes, and the nature of the infection.

Fig. 6.—Roentgenogram of an abscess occurring in the superior pelvirectal space, taken on the third day after it had been opened. It was cured with injections of bismuth paste. No fistula followed.

4. The fistula stage begins with the discharge of pus, and ends when the fistula is cured.

CLASSIFICATION

Custom and usage have divided fistulas[5] into two principal varieties, namely, complete and incomplete. The incomplete variety is still further subdivided into blind internal and blind external fistulas, neither of which, however, according to the foregoing definition, is a fistula. Each in reality is a sinus, one an internal and the other an external rectal sinus. Complete or true fistula should be classified, according to the anatomic location of the internal opening, into anal fistula, or fistula-in-ano (the internal opening being located in the anus); ano rectal fistula (with the internal opening located in the junction between the rectum and anus); and rectal fistula (when the internal opening is in the rectum proper). Complex, watering-pot, multiple, horseshoe, and other so-called varieties of fistula are simply expressions of com-

5. Pennington, J. Rawson: Rectal Fistula, New York Med. Jour., Oct. 16, 1915.

plexity, multiplicity, position or shape of one or the other of the foregoing divisions, or a combination of them.

GRAVITY

The gravity of the case, all things being equal, is governed by the position of the internal opening. A rectal fistula with a single tract, and with one opening in the rectum is much more formidable than an anal fistula of the horseshoe or some other variety, with two or more openings in the anus and twenty-five, forty, fifty, or more openings on the buttocks (Fig. 4). The number of external openings has but little to do with the relative gravity of the case.

DIAGNOSIS

The diagnosis of an external rectal sinus—"blind external fistula"—is usually made when an internal opening cannot be demonstrated either by a probe or by injecting water, a solution of methylene blue, peroxid of hydrogen, or other substances, through it and into the bowel. These tests, however, are not infallible. Angulation of the tract may prevent the probe from entering the bowel, while necrotic tissues, or a kind of "trap-door" arrangement along the fistulous channel, may prevent the injection from passing through the

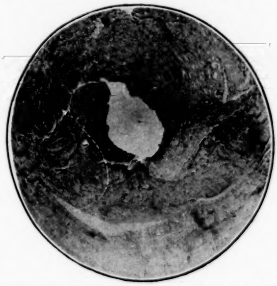

Fig. 7.—Photomicrograph of a cross section of a fistula and its pyogenic membrane. It reveals numerous sinuses extending off from the main tract, and shows why incising the fistulous tract and making Salmon's back-cut so often fail to cure.

channel. The roentgen ray in combination with subnitrate of bismuth ointment, is a valuable aid in the diagnosis of fistula (Fig. 5).

TREATMENT

This is preventive (prophylactic and abortive), curative (injections, incision, ligature and excision with immediate suture) and palliative.

Prophylactic.—A careful examination usually elicits the fact that practically every person who has fistula has, or has had, some other form of rectal disease. These conditions favor the invasion of the perirectal tissues by micro-organisms, which may be followed by an abscess and a fistula. If persons were instructed how to keep the rectum clean and in a sanitary and healthy state, and did so, fistula would become much less frequent. Since the number of cases of fistula may be greatly reduced by instruction and preventive medicine, is it not our duty as proctologists to launch a campaign for the prevention of this stubborn affection?

Abortive Treatment.—The time to abort a fistula is during the abscess stage. If the abscess is opened early and the abscess wall not interfered with in any way by means of instruments or drugs, but the cavity freely drained and gently filled with subnitrate of bismuth ointment, and this treatment repeated when indicated, the fistula will, as a rule, be aborted (Fig. 6). Do not forget that too much interference with an abscess has caused many a fistula.

Injections.—I have had most excellent results in the treatment of some cases of fistula by first cleansing the

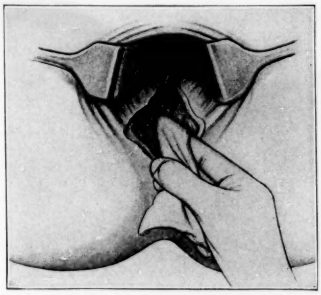

Fig. 8.—Schematic illustration of a fistula incised and the rectum held widely open with retractors. The necrotic tissue is being removed with a piece of gauze, and sinus openings may be seen in the pyogenic membrane.

tracts with neutral solution of chlorinated soda, and then injecting them with subnitrate of bismuth ointment.

Incision.—Passing a grooved director through and simply incising the fistulous tract or tracts and the tissues distal to it, and allowing the wound to heal by granulation has been and still is almost universally employed in the treatment of this disease. Tuttle,[6] however, says that "In 2,196 cases operated on in general hospitals by surgeons, less than 45 per cent. of them were even claimed to have been cured." As he failed to state the technic employed, is it not reasonable to suppose that at least 95 per cent. of them were operated on by the incision method either with or without Salmon's back-cut, and that crevices or sinuses similar to those shown in Figures 7, 8 and 9 were not discovered and removed, and that they continued to

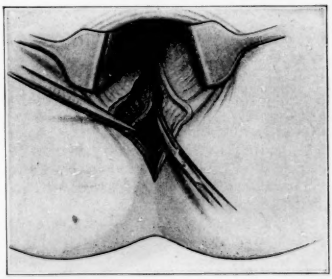

Fig. 9.—Schematic illustration of removal of the pyogenic membrane after the fistula has been incised.

reinfect the operated field? We believe this to be the reason because: (1) it is the method employed by nearly all operators, and (2) simply slitting up a fistulous tract and not removing the "pyogenic membrane," when it can be done, is certainly not good

6. Tuttle: Diseases of the Rectum.

surgery. Moreover, such procedures necessarily prolong the time of recovery and increase the amount of scar tissue, which may lead to malignancy. Such a case recently came under my care.

Excision with Immediate Suture.—A blunt-pointed director is passed through the fistula and into the rectum. The end in the rectum may or may not be hooked out through the anus. Then, either the tissues resting on the instrument are cut through and the

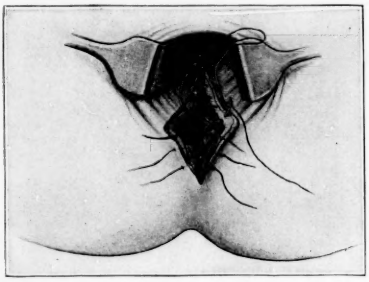

Fig. 10.—Schematic illustration showing the method of closing the mucous membrane, the sphincter and the deeper tissues, and the skin.

so-called "pyogenic membrane" dissected out (Fig. 9), or the mebrane is dissected out, leaving it threaded on the director. The probe should be used with the utmost gentleness, or a false passage may be made, defeating the purpose of the operation. After the incision of the intervening tissues and the removal of the "pyogenic membrane," care should be taken to locate and remove any offshoots or side channels, since all infected tissue must be removed and the wound disinfected before closing.

Closing the Wound.—Care should be taken that all bleeding is controlled before the wound is closed, otherwise a hematoma may form and prolong, if not defeat the benefits of the operation. Suturing the wound is sometimes very difficult to accomplish. First, I usually close the incision in the mucous membrane, from its termination within the rectum to the skin, with continuous catgut suture (Fig. 10), then the severed sphincter or sphincters and the deeper tissues with interrupted buried catgut sutures (Fig. 10). Finally, the skin and fascia are united with interrupted silkworm gut (Figs. 10 and 11). After the wound is closed, one should attempt no such stunts as pulling the mucous membrane down over the wound and stitching it to the skin, or covering the lines of suturing with collodion dressings, as advised in some textbooks. The wound should be dressed with iodoform or plain gauze and a T bandage applied. I usually direct that the bowels be moved at the end of the third or fourth day with an injection consisting of about 1½ pints of water, in which from 30 to 40 grains of inspissated ox-gall have been dissolved.

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ABSTRACT OF DISCUSSION

DR. WILLIAM M. BEACH, Pittsburgh: The history of fistula is one of infection. Very seldom does the proctologist see the acute stage of fistula; that period is usually managed rather indifferently by the general practitioner until the abscess breaks. It were more fortunate to the patient to subject him to surgical measures early in order to avoid the formation of fistula. Fistula has two or three origins: first, the tubercle bacillus, and second, the *Bacillus coli-communis*, mixed with pyogenic cocci. The persistence of a fistula depends on reinfection, and the pictures shown today explain how that is possible and may convert a simple tract into a complex one.

The extent of a fistula depends on three things: first, on the size of the original abscess; the ischiorectal fossa containing fat offers little resistance to the invading bacteria and the abscess is limited by its capacity. The pelvirectal space makes a large abscess possible; second, the extent of the fistula will depend on the degree of patency of the external or internal opening. A draining tract will not extend; third, it depends on the virulence of the infecting micro-organism. Fistulas are not by any means always due to the tubercle bacillus, as is popularly supposed, but all sorts of micro-organisms are found in these processes, and they are frequently very destructive of tissues.

The treatment involves the principle of drainage. The internal opening should be located, and is usually found between the ental and ectal sphincters; if the tract runs up the bowel, it is usually submucosal and can be incised with impunity and without fear of incontinence.

DR. A. E. CHACE, New York: I think Dr. Pennington has missed the real point in the relationship which lies between the intramuscular sinuses and ischiorectal abscesses, which I brought out in a paper before a New York medical society last winter. These intramuscular sinuses not only go down, as he has shown in the slides, just to the muscle, but actually into it, and in some instances almost pierce the muscle, thereby accounting for the path of infection from the rectal mucosa, through the muscle, into the ischiorectal fossa. I have no doubt that Dr. Pennington has seen the beautiful illustration of the sinuses extending into the muscle in Hermann and Defosse's original work. If he will go still further and look at the beautiful wax models by Dr. F. P. Johnson of intramuscular sinuses, he will see how well this point is illustrated. There is no question but that they are the cause, in many cases, of ischiorectal abscesses. We all have about our anal canals at least several of these long, blind sinuses which are potent of inflammatory reaction.

DR. R. W. JACKSON, Fall River, Mass.: There are two phases of fistula work of which I want to say a word. The first is on the diagnostic side. A large majority of the cases are unmistakably associated with the rectum in cause or sequence, but too many are not, or are not plainly so. There are many which originate in extra-intestinal foci, such as lesions of bone and joints, uterus and adnexa, or genito-urinary tract, but which often empty near the anus and lead to false diagnosis by the average attending practitioner. I would call attention to the value of colored solutions (methylene blue and the like) injected into the external openings, this to be followed immediately by proctoscopic or sigmoidoscopic examination to locate the point of emergence, if any, into the gut, that is, the site of an internal opening. And further, the patients should urinate immediately after such injection to show possible communication with the urinary tract; and here I use the word "immediately" advisedly, for it must be recollected that the methylene blue so injected may be absorbed and appear in the urine later by the

Fig. 11.—Photograph taken two weeks after the operation. It shows the operative field and the fistulous mass that was removed. One sinus extended to Poupart's ligament and another involved the scrotum, which was opened during the dissection, the testicle dropping out. The wound was closed after the method shown in Figure 10. The patient made a permanent recovery.

hematogenous route. The great value of bismuth paste injected, not for therapeutic but for diagnostic purposes, ought also to be enlarged on. The paste should be thin to reach easily the limits of all side tracts, and the main tract should contain simultaneously a probe passed to its limit. Then the picture shown by roentgenograms, provided they are taken in stereoscopic form, is often graphic indeed, a bismuth finger pointing directly at the primary focus of trouble, particularly if that be osseous. Flat, nonstereoscopic pictures have no such value. I have found these procedures invaluable in some work a description of which has already appeared in print.

The second phase is on the therapeutic side, and I would call attention to it by asking a question. Is there not a field in the surgical therapeusis of the highly septic processes about the anus and rectum for the use of the sodium hypochlorite solutions? The technic of their use must of necessity be imperfect as compared with the exact methods in use in military surgery, yet, though I am only just beginning to employ them, I believe they hold promise.

DR. FENTON B. TURCK, New York: As I understand it, this paper is presented to emphasize the idea of removing the lining wall of the fistula and the surrounding round cell infiltration by operative procedure. The fistulous tract is nothing but the result of the formation of an avenue of escape for the products of infection. The walls of the fistulous tract, and likewise the surrounding tissue, are infected. Dr. Pennington proposes to remove the products of infection from the entire infected area, bringing the fresh tissues together by suture, with the hope of obtaining primary union, as Dr. Smith proposed to do in the eighties. The objection claimed as the result of clinical experience is that many of the cases do not permanently heal because of retention of infected material. If a small drainage of silkworm gut is used, would there still be danger of reinfection, especially if the sodium hypochlorite infiltration method is used?

DR. B. GRUSKIN, Chicago: I shall discuss this paper from the point of view of a laboratory man interested in infection and immunity. It occurs to me that Dr. Pennington has done valuable work by calling our attention to the infections of the lower bowel. For years we have been becoming more appreciative of the infections due to the tonsils, the teeth, etc. It has been proved that such conditions as arthritis, rheumatism and other disturbances are the result of infection from those regions; but never have we though of the fact that the lower bowel, being more exposed to micro-organisms than any other part of the body, if it should by some pathologic condition become irritated, would certainly offer the most favorable field for infection. Dr. Pennington's experiments were carried out in my laboratories, and I especially appreciate that it took an enormous amount of labor and study for Dr. Pennington to come to his conclusions, and I deem it my duty to call the attention of the profession to the importance of these researches, which will in the future throw more light on so many of the so-called idiopathic conditions.

DR. DWIGHT H. MURRAY, Syracuse, N. Y.: I do not believe the rectum is any more liable to infection than any other part of the body because of the material that goes through it; that is, if normal; but, because of our careless habits we may through constipation, by using the rectum instead of the sigmoid as a reservoir for feces, become autointoxicated and lose our power of resistance against infection. With a normal condition of the colon and rectum we should not have infection.

DR. LOUIS J. HIRSCHMAN, Detroit: In regard to the diagnosis of a fistulous tract, we have heard about the injection of colored solutions. Colored solutions run out of the tract By reinjecting bismuth paste just before operating on a patient the contrast of the yellow bismuth against the red flesh is far more definite and much more satisfactory than a stain of methylene blue solution or black permanganate solution. Even while operating the watery solution runs out while the bismuth remains in situ and may point out something overlooked.

With regard to the remarks of Dr. Turck, most of us have always advocated the excision of the whole fistulous tract. Nine or ten years ago I called attention to microscopic submucous tracts and I advocated excision of the whole tract for that reason, and I have had no reason to change my procedure since. I believe I have had good results because I excised the whole tract.

Dr. Pennington spoke of the fistula being incised, curetting out the cavity well and packing. I have tried to curet the tract and realized the fallacy of this very soon. It cannot be done; it must be excised. Every proctologist feels that, I am sure. I am disappointed to hear that Dr. Pennington is still sewing up fistulas. I thought we had all forgotten about that in infected tracts. I want to congratulate Dr. Pennington on the case he showed in which the patient got well without further trouble. I think it is impossible to sew up an infected tract without great danger.

DR. J. RAWSON PENNINGTON, Chicago: I was glad to hear Dr. Chace say that he had done some original work on the rectal sinuses, and that he had read a paper on the subject before a medical society last winter. As he has not published his paper, he could not expect the profession to know about it.

I was surprised to hear Dr. Hirschman say that he thought we were through with sewing up fistulas, and that he would like to see a photograph taken six months from now of the patient whose picture was thrown on the screen. I might say that I saw the patient four or five years after the operation and that he was still well.

In a large percentage of the cases I dissect out the fistulous tract and close the wound because it unquestionably gives the best results, and there is less likelihood of incontinence. Evidently, Dr. Hirschman is not familiar with the technic for excising a fistula and closing the wound. If he will follow the suggestions laid down in the paper I think he will succeed and be greatly pleased.

THE VALUE OF MAKING LEUKOCYTE COUNTS ON THE URINE IN INFECTIONS OF THE KIDNEY *

HERMAN L. KRETSCHMER, M.D.
Urologist, Presbyterian Hospital; Genito-Urinary Surgeon, Alexian Brothers' Hospital
CHICAGO

During the past three years we have been controlling all cases of renal infection, including tuberculosis, that have been admitted to the Presbyterian Hospital, by making leukocyte counts on the urine. It has seemed to us that this was the only way one could obtain definite and exact information relative to the severity of the infectious process, and furthermore, it has been giving us an idea of the improvement in the patient's condition while under treatment.

The idea of making leukocyte counts on the urine is not a new one. Its routine use, however, in the control of urinary infections, hand in hand with bacteriologic controls, I do not think has become an established procedure. I am not familiar with any clinic or laboratory that employs the leukocyte count on the urine as a routine in its daily work, so that I believe the statement is justified, that, as a rule, this procedure is very rarely, if ever, employed in routine clinical work. Just why this should be is not clear, for it is hard to see how one can do accurate work and get along without its use as a control of the progress made in cases of urinary infection that are under treatment.

This method is particularly valuable for informing us of the progress made in cases of infection of the renal pelvis which are being treated by pelvic lavage.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

As a rule, indefinite terms, such as "more or less," and sometimes plus signs are used, when referring to the amount of pus present in the urine. In a general way, these terms, being relative, may suffice. Nevertheless, they are open to the criticism that they are not accurate and one cannot tell from time to time the exact amount of progress the patient has made. There can be no question that when one wishes to carry out more accurate work, the use of plus signs, as well as the indefinite terms at present in general use, is most unsatisfactory.

In the treatment of cases of pyelitis by pelvic lavage, one can tell absolutely whether or not the patient is making progress by a comparison of the leukocyte counts made each time the ureters are catheterized. In several instances we have noticed a transitory rise in the leukocyte count after the patients were treated with silver nitrate. We take it that this transitory increase in the number of cells was due to the medication. In many instances, the amount of fall in the leukocyte count from time to time following each treatment has been very striking, as will be illustrated in the case reports.

This method may be criticized as being inaccurate and containing the possibilities of error. Doubtless there are many factors which have a direct bearing on the volume of the urine. Nevertheless, it is surely much more accurate than no method at all, and far superior to the use of more or less indefinite terms. This method, technically, is just as accurate as is the counting of the leukocytes in the blood. In view of the fact that the blood volume is constant, the normal number of leukocytes in the blood per cubic centimeter is practically constant. The urinary leukocyte count will naturally vary with the urinary output and is subject to certain variations. The count will be high or low in direct relation to the urinary output.

In order to make our counts as nearly as possible under the same conditions, our patients are instructed to drink 6 ounces of water two hours before and 6 ounces more one hour before the urine is to be examined. Just before taking the first glass of water, that is, two hours before cystoscopy, the patient voids, so that the bladder at this time is empty.

In the cases to be reported in this series, the counts were made on specimens obtained from the right and left kidneys through the ureteral catheter and from catheterized bladder specimens. In a few instances, only the bladder urine was counted, after the kidneys were free from infection and pus.

If each count is made under the same conditions and compared with each previous count, I believe that this method has a distinct value in showing the improvement made from one examination to the next. This can be seen by referring to the case reports.

TABLE 1.—RESULT OF TREATMENT IN CASE 1

Date	Leukocyte Count			Cultures			Treatment	Remarks
	Right	Left	Bladder	Right	Left	Bladder		
11-15-15	360,000	240	220	Sterile	Sterile	Sterile	5 c.c. 10 per cent. protargol; pelvic lavage	
11-29-15	88	308	5,280	Sterile	Sterile	Sterile	5 c.c. 10 per cent. protargol; pelvic lavage	
12- 5-15	4,000	3,850	44	Sterile	Sterile	Sterile	5 c.c. 10 per cent. protargol; pelvic lavage	
12-14-15	24	13	..	Sterile	Sterile	Sterile	7 c.c. 1 per cent. silver nitrate; pelvic lavage	
12-18-15	.....	..	16	.....	.....	Sterile	.....	No cystoscopy
12-26-15	.....	..	16	.....	.....	Sterile	.....	No cystoscopy
1-11-16	.....	..	35	.....	.....	Sterile	.....	No cystoscopy
1-23-16	.....	..	63	.....	.....	Sterile	.....	No cystoscopy

TABLE 2.—RESULT OF TREATMENT IN CASE 2

Date	Leukocyte Count			Cultures			Treatment
	Right	Left	Bladder	Right	Left	Bladder	
5-21-15	638	254	690	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
6-16-15	260	126	300	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
9- 3-16	90	80	100	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
9- 4-16	49	40	77	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
9- 9-16	40	35	115	B. coli	.....	B. coli	Pelvic lavage, 1 per cent. silver nitrate
10-12-16	..	..	..	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
10-27-16	32	20	44	B. coli	Sterile	B. coli	Pelvic lavage, 2 per cent. silver nitrate
11- 6-16	3	8	20	Sterile	Sterile	B. coli	Pelvic lavage, 2 per cent. silver nitrate
11-14-16	..	..	134	.....	.....	B. coli	
11-20-16	..	..	11	.....	.....	Sterile	
11-22-16	..	..	8	.....	.....	Sterile	
11-24-16	..	..	20	.....	.....	Sterile	

TABLE 3.—RESULT OF TREATMENT IN CASE 3

Date	Leukocyte Count			Cultures			Treatment
	Right	Left	Bladder	Right	Left	Bladder	
10-16-16	165	55	880	B. coli, staph.	B. coli, staph.	B. coli, staph.	Pelvic lavage, 1 per cent. silver nitrate
12- 7-16	99	33	220	B. coli	B. coli, staph.	B. coli, staph.	Pelvic lavage, 1 per cent. silver nitrate
12-22-16	*	*	*	.....	.....	.....	Pelvic lavage, 1 per cent. silver nitrate
12-30-16	8	0	0	Sterile	Sterile	Sterile	Pelvic lavage, 1 per cent. silver nitrate

TECHNIC OF MAKING THE COUNT

In making the leukocyte counts, the urine is not centrifuged. The specimen is vigorously shaken so as to have the leukocytes and the urine well mixed. Toison's solution is drawn to the 0.5 mark and then urine is drawn to 11. This is agitated and a drop of fluid placed on a blood-counting chamber, covered with a cover glass, and the leukocytes are counted in the usual way.

knee. This was followed a few weeks later by a similar condition in the other knee. Since then the patient has suffered from arthritis, growing worse gradually. About three years ago the patient began gradually to have urinary disturbances. He was obliged to void about four times every night and sometimes more. There was a burning pain in the urethra.

On admission the patient urinated every half hour during the day. He has had pyuria for several years. The cystoscopic examination showed a generalized cystitis. There were many flakes of mucopus adherent to the bladder wall.

TABLE 4.—RESULT OF TREATMENT IN CASE 4

Date	Leukocyte Count			Cultures			Treatment
	Right	Left	Bladder	Right	Left	Bladder	
6-22-16	1,122	1,244	1,476	B. coli	Negative	B. coli	Pelvic lavage, 1 per cent. silver nitrate
9-28-16	1,704	242	143	B. coli	Negative	B. coli	Pelvic lavage, 1 per cent. silver nitrate
11-16-16	132	22	187	Sterile	Sterile	Sterile	Pelvic lavage, 2 per cent. silver nitrate
11-28-16	123	18	187	Sterile	Sterile	Sterile	Pelvic lavage, 2 per cent. silver nitrate

TABLE 5.—RESULT OF TREATMENT IN CASE 5

FIRST ADMISSION

Date	Leukocyte Count			Cultures			Treatment	Remarks
	Right	Left	Bladder	Right	Left	Bladder		
1- 5-15	.....	.....	1,240	.....	.....	B. coli	.....	During the patient's first stay in the hospital she was examined by cystoscope only once; no urine was obtained from the left catheter
1- 7-15	3,520	.....	1,370	B. coli	.....	B. coli		
1-17-15	.....	.....	161	.....	.....	B. coli		
1-18-15	.....	.....	64	.....	.....	B. coli		
1-19-15	.....	.....	350	.....	.....	B. coli		
1-20-15	.....	.....	27	.....	.....	B. coli		
1-20-15	.....	.....	91	.....	.....	B. coli		
1-21-15	.....	.....	33	.....	.....	B. coli		

SECOND ADMISSION

5-10-15	.....	.....	88	.....	.....	B. coli		
5-12-15	.....	.....	770	.....	.....	B. coli		
5-13-15	.....	.....	153	.....	.....	B. coli		
5-17-15	48	33	100	B. coli	B. coli	B. coli	Pelvic lavage; 2 per cent. silver nitrate	
5-24-15	15	22	13	B. coli	Negative	B. coli	Pelvic lavage; 2 per cent. silver nitrate	
6- 1-15	30	28	40	Sterile	B. coli	B. coli	Pelvic lavage; 2 per cent. silver nitrate	
6- 7-15	26	54	42	Sterile	Sterile	Sterile	Pelvic lavage; 2 per cent. silver nitrate	
6-19-15	11	27	22	Sterile	Sterile	Sterile	Pelvic lavage; 2 per cent. silver nitrate	

TABLE 6.—RESULT OF TREATMENT IN CASE 6

Date	Leukocyte Count			Cultures			Treatment	Remarks
	Right	Left	Bladder	Right	Left	Bladder		
12- 8-16	451	80	1,100	B. coli	Sterile	B. coli	Pelvic lavage; 1 per cent. silver nitrate	
12-12-16	...	..	.....	Sterile	Sterile	Sterile	Pelvic lavage; 1 per cent. silver nitrate	No cell counts made
1- 4-17	0	0	0	Sterile	Sterile	Sterile	Pelvic lavage; 1 per cent. silver nitrate	

* Cultures lost.

As an example of the results obtained by this method, I wish to present the histories of a few cases which have been selected at random from our records of cases of pyelitis which have been treated by pelvic lavage and in which the degree of infection was controlled by making routine leukocyte counts.

REPORT OF CASES

CASE 1.—J. S. F., man, aged 40, on whom a diagnosis of pyelitis with arthritis was made, had begun to have trouble six years previously with a painful swelling of the right

Ureteral catheterization was easy and without obstruction. Examination of the urine revealed the presence of pus in the bladder and in the right and left kidney urines. All cultures have remained persistently sterile.

The result of the treatment and its effect on the leukocyte count may be seen at a glance by referring to Table 1.

CASE 2.—Mrs. E. H., aged 28, on whom a diagnosis of colon pyelitis was made, had had bladder trouble for many years. She had been married nine years. On her honey-

moon she had an attack of cystitis, with severe burning pain on urination. At this time she also had frequency, so that she was obliged to rise several times during the night. She had occasional attacks of chills and fever which had been attributed to malaria and to her appendix. She complained of pain on the right side both in front and in back. Four and a half years ago, during an acute attack of pain on the right side, her appendix was removed. She was told that it was not diseased. Cystoscopic examination proved the bladder to be negative. Catheterization of the ureters was easy and without obstruction. The urine showed the presence of pus in both right and left kidneys and in the bladder. Cultures showed *Bacillus coli*. The roentgen-ray examination was negative for calculi. The treatment was pelvic lavage.

CASE 3.—Mrs. Dr. F., aged 28, on whom a diagnosis of pyelitis during pregnancy was made, dates the onset of her present trouble from the sixth month of her pregnancy. It was accompanied by severe pain in the right side and in the back. The pain gradually grew worse and was followed by a rise in temperature. The patient had several attacks of chills and fever. Her temperature varied from 95.2 to 103 F. between 1 a. m. and 8 p. m. The patient had her appendix removed for a similar attack of pain before she was married. Cystoscopy revealed a mild cystitis. Ureteral catheterization was easy and without obstruction. The urine from the right and left kidneys and from the bladder showed the presence of pus and a mixed infection of *B. coli* and staphylococci. The patient was given four treatments of pelvic lavage with silver nitrate.

CASE 4.—Dr. L. R. F., a man, aged 38, whose case was diagnosed as pyelitis, was operated on in January, 1917, for hemorrhoids. Following catheterization, cystitis developed, accompanied by frequent urination and pain. The urine was examined and pus and *B. coli* were found. The roentgen-ray examination was negative. Cystoscopy showed the following: The bladder was negative. Double ureteral catheterization was easy and without obstruction. The urine from the right and left kidneys and from the bladder showed the presence of pus. The right kidney and bladder urines showed *B. coli*. The left kidney was sterile. The patient was treated by pelvic lavage with silver nitrate.

CASE 5.—Mrs. F. P., aged 27, whose case was diagnosed as colon pyelitis, complained of frequent and burning pain on urination, chills and fever, and pain in the right lumbar region. Severe backache at night began about three weeks ago, which was relieved by lying on something hard. The urine became irritating and she was obliged to urinate every few minutes, both day and night. At this time she began to have chills which were followed by a rise of temperature. For a few days previous to this she had had two severe chills each day. A steady backache had been present for the last three weeks. The roentgen-ray examination was negative for stone. Cystoscopy showed the right ureter edematous and swollen. The left appeared normal. A mild degree of cystitis was seen at the base. Ureteral catheterization revealed no urine from the left kidney. That from the right side contained pus and *B. coli*. At the subsequent examinations there was no difficulty in obtaining the urine from the left kidney. The patient was given the usual pelvic lavage treatments.

CASE 6.—Mrs. E. L. H., aged 41, on whom a diagnosis of pyelitis following pregnancy was made, was suddenly seized, one month after her last pregnancy, with an attack of high fever, associated with chills and sweating. Her temperature varied from 100 to 102.5 F. There were no bladder symptoms. This attack of chills, fever and sweating lasted for sixteen weeks. During this time the urine showed the presence of pus and *B. coli*. The second attack occurred last fall, when the patient was suddenly seized with severe chills and fever, associated with severe pains in the back and lumbar region. The roentgen-ray examination was negative for stones. Cystoscopic examination showed the bladder negative. Bilateral ureteral catheterization was easy and without obstruction. Pus and *B. coli* were found in the bladder urine and in the urine from the right kidney. The left kidney urine was sterile. The patient was treated by pelvic lavage.

CONCLUSIONS

1. This method is of distinct value in showing the improvement made from time to time while the patient is under treatment.
2. It can be carried out without any trouble or inconvenience to the patient.
3. No conclusions can be drawn from a single count. The value of the method must depend on making each count under exactly the same conditions.
4. This method should be considered from a standpoint of comparison.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. MARTIN KROTOSZYNER, San Francisco: While I have no experience with comparative quantitative determination of leukocytes present in renal urines, I have for a number of years employed their comparative qualitative estimation for diagnostic purposes in bilateral renal lesions. From the difference in the shape, outline and size of leukocytes and their nuclei, valuable conclusions are feasible in many instances on the nature and extension of the bilateral process, and it is fair to assume that by these means Dr. Kretschmer's method might gain materially in diagnostic significance.

DR. W. C. QUINBY, Boston: Dr. Kretschmer has added one more method to our armamentarium. It is undoubtedly one of value, and can be performed by the clinician. Although I have not investigated the leukocyte count in the urine, I have followed such cases by the bacterial count. The urine of patients under treatment by pelvic lavage has been examined at intervals of about a week in the bacteriologic laboratory. The culture is plated and the number of colonies which grow in a given length of time counted. This can be done with a good deal of accuracy, and, to my mind, is probably better in estimating the progress of a case under lavage than counting the leukocytes. I concede, however, that counting the leukocytes is of real value if a competent bacteriologist is not available.

DR. GEORGE A. WYETH, New York: I should like to ask Dr. Kretschmer what he considers the normal.

DR. H. L. KRETSCHMER, Chicago: About ten to fifteen.

INSOLUBILITY OF SOFT GELATIN CAPSULES *

EXPERIMENTS SHOWING THAT SOFT CAPSULES ARE RELATIVELY INSOLUBLE IN THE STOMACH

F. W. DERSHIMER, M.D.

Director of the work of the International Health Board in British Guiana

At all times, and at the present time especially, it is of great importance to both physician and patient that all drugs be administered in a form that is easily digested and absorbed. Sometimes, however, in our efforts to make medicines pleasing to the palate of our patients, we may succeed too well, with the result that the coatings protect the drugs not only from the action of the saliva, but from the gastric and enteric juices as well. Recent experiments seem to prove that soft gelatin capsules do this very thing.

In September of last year, a local firm offered us some thymol at a very attractive price, stating that they were able to quote so low a price because the thymol had been ordered before the war. Examination of the samples showed that for some reason the drug had been put into soft capsules. To test their solubility several of the capsules were put into a pepsin

* The experiments on which this paper is based were conducted with the support and under the auspices of the International Health Board of the Rockefeller Foundation.

solution that had been slightly acidified with dilute hydrochloric acid. A hard capsule was placed in some of the same solution as a control and both were incubated at body temperature. The hard capsule broke in four minutes and had completely dissolved in twenty-one minutes. After twenty-four hours, the soft capsule showed no signs of dissolving beyond a slight softening of the outer surfaces. The offer was rejected and nothing more was thought of the matter, it being supposed that this lot of capsules had become insoluble, for some unknown reason, but that others would be satisfactory.

Recently, however, our attention was again drawn to the matter by a memorandum from the Malaya Board of the International Health Board. They reported that soft gelatin capsules, furnished by a reputable United States drug firm, were not easily soluble either in digestive solutions or in the alimentary tract. On comparative test, those capsules containing oil of chenopodium removed an average of but 77.5 per cent. of the hookworms present, while equal doses of the same oil, when removed from the capsules before administration, caused the expulsion of 97.9 per cent. of the hookworms. In other words, the capsules decreased the efficiency of treatments by more than 20 per cent.

Thinking that it might be possible that certain drugs affected the solubility of the capsules adversely, we then tested some capsules containing hexamethylenetetramin. It may be remarked that there is no apparent reason why a drug that is so nearly tasteless, even when given in solution, should be put into capsules of any sort. They were offered in the local market in that form, however. Several of the capsules were placed in a similar solution to the one used in our first experiment. After having been incubated at body temperature for twenty-four hours they had not dissolved.

SUMMARY OF RESULTS OF EXPERIMENTS

Kind of Capsules	Time Required to Release Contents When Placed in Acidified Pepsin Solution at Body Temperature
Hard gelatin capsules	4 minutes
Soft gelatin capsules supplied by two different firms.	3 hours 50 minutes
Soft gelatin capsules supplied by two other firms	Not released after 24 hours

We then tested a number of soft capsules containing oil of chenopodium. These were manufactured in the United States by two reputable firms other than the one from which the Malaya Board obtained its supply. Our results were similar to those of the Malaya Board, an average of three hours and fifty minutes being required for the capsules to dissolve sufficiently to release the oil. In all cases the hard capsules used as controls dissolved in about the same time as stated in connection with the first experiment. We were not able to test the capsules by administration, as we use oil of chenopodium in but few cases here.

These experiments seem to indicate that drugs should not be administered in soft gelatin capsules, as supplied at present, with any hope that they will act efficiently.

Tongue Evidence of Infanticide.—In a case mentioned in the *Clinica Ostetrica* L'Lattes was able to detect by oblique illumination the regular imprint on the tongue of the child of cloth fibers corresponding to the cloth wrapped around the child.

QUININ AND UREA IN THE TREATMENT OF HEMORRHOIDS

SUPPLEMENTARY REPORT *

E. H. TERRELL, M.D.
RICHMOND, VA.

At the meeting of the American Proctologic Society in Detroit, in 1916, I read a paper advocating the use of quinin and urea in the treatment of internal hemorrhoids. At that time, although a few favorable comments were made on the paper, there was apparent a feeling of distrust on the part of some of those present. Since then, however, several members of the society, and many others, have written me of the good results obtained by the method described. It has been very gratifying to learn that others are getting equally as satisfactory results as I have been claiming.

In my previous paper 128 cases were reported. During the past twelve months, I have used quinin and urea in the treatment of 185 cases, making a total to this date of 313 patients on whom I have used the remedy. As in the previous report, I include only those cases in which some definite knowledge of results is known. There have been quite a number of patients who received one or more treatments and then disappeared for reasons unknown to me. These are not included in this report.

During the year, about 20 per cent. of the cases of hemorrhoids examined were found to be complicated by polypi, hypertrophied anal valves, fissures, etc. If the complication was such that it could be removed in the office under local anesthesia, this was done, and the hemorrhoids were treated afterward. In those cases requiring a general anesthetic to get rid of the complication, the hemorrhoids were excised at the same time. There have been quite a number of such during the year, but they have no place in this report and are not included.

Quinin and urea should not be used in inflamed, strangulated or external piles, but is a specific in that large class of chronic internal hemorrhoids, the chief symptoms of which are protrusion and bleeding. A hemorrhoid that is badly ulcerated and bleeds freely will seldom bleed again after the first treatment. To those who have a prejudice against all forms of treatment other than operative, and I know there are many such, I would suggest the use of quinin and urea solution to tide over the bad surgical risks, made so from excessive hemorrhoidal bleeding. You will be surprised how quickly the hemoglobin index will improve.

About 50 per cent. of those with protrusion are relieved of this symptom immediately after all the tumors have received one injection. With those situated lower in the anal canal, the prolapse will disappear gradually, although a marked reduction will be noticed from the beginning of treatment. Soon after a hemorrhoid is injected with quinin and urea solution, it loses some of its flexibility and becomes more or less fixed, when it can be felt very plainly with the finger introduced into the anus. This lessening of mobility accounts in many cases for the sudden relief of prolapse, for a noticeable diminution in the size of the tumors does not begin for several days after treatment. In a few days, a hemorrhoid that has been injected with a solution of quinin and urea has a

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

glazed appearance, and is very much paler in color. A fibrosis with local anemia of the parts has been produced. On account of the fibrosis, the blood vessels are constricted, and, since the parts are denied the usual amount of nourishment, an atrophy is the result. Although the question is open to criticism, I believe this is the manner in which a cure is produced.

I have experimented with various strengths of solution in some of my cases, and have finally come to the conclusion that 5 per cent. is approximately the right strength for the average case. Sometimes if a hemorrhoid seems resistant to treatment, as occasionally it does, I use a 10 per cent. solution with better results.

It is my custom to inject one hemorrhoid each succeeding day until all are treated; but, if the sphincters are relaxed, there is no objection to treating two or more hemorrhoids at one time. After all the hemorrhoids have received a treatment, the patient is asked to return once a week until a cure is effected, which takes about six weeks for the average case. At these visits, treatments are alternated from one side to the other, that is, the piles on the right side are injected at one visit and those on the left at the next, so that each hemorrhoid is treated once every two weeks, which, I think, ordinarily is often enough. There is no attempt made to dilate the sphincters, nor do I draw the hemorrhoids down, as is advised by some operators. Personally, I think a Brinkerhoff anal speculum is the instrument of choice in bringing the tumors into view. It is small, conical in shape, and very easily introduced. The pile selected for treatment is cleansed with an antiseptic solution, preferably iodin and alcohol. Enough of the quinin and urea solution is then injected into the pile to slightly distend it. The needle must be very small, and should be inserted at a point as far away from the skin margin as possible, the slide in the speculum being used as an aid in doing this. The injection should be made through and not into the mucous membrane; otherwise a slough is likely to occur. During the course of treatment there are no restrictions whatever placed on the patient. He is allowed to proceed about his business as usual.

Most of those who come to me for the treatment of hemorrhoids are more or less constipated, and since the latter condition most often precedes and is the cause of the former, I deem it necessary that the treatment of both be taken up at the same time. Eliminating appendicitis, bile tract infections and other like intra-abdominal conditions as causes, I have been greatly surprised to find how easily many cases of long-standing constipation are relieved. Most patients while under treatment for constipation need encouragement more than all else, and visiting the physician at regular intervals for six weeks or so, while under treatment for hemorrhoids, offers an excellent opportunity for this. At the same time, other measures deemed necessary are used. Relief from constipation, when possible, is a decided aid in the treatment of the hemorrhoids, and no doubt lessens greatly the likelihood of a recurrence.

The question of whether or not the treatment is painful has been asked many times. From the standpoint of both physician and patient, this is important. Any so-called ambulatory or nonoperative treatment for hemorrhoids that causes pain, or is likely to put the patient to bed, is a failure. An anesthetic and operation is far preferable, if such is to be the case. In fact, on general principles, I am not opposed to operations for hemorrhoids, if properly done. On the other hand, if hemorrhoids can be cured with no more than a slight discomfort and with no loss of time from business, I think it a decided step forward in the treatment.

In properly selected cases of hemorrhoids, treated with quinin and urea, as outlined, rarely does a patient complain of pain during or following a treatment. If the work is done carefully, gently, and without haste, 90 per cent. of the patients will not know when the injections are made. During the past year, in treating 185 patients, three have had pain due to complications, which I will describe. In one of these there occurred an edema of the skin below the point of injection, and it was apparently quite painful for two days. I think the injection was made too near the skin line, a danger I advised against in my last paper. In the second, there developed during the course of treatment a well marked fissure, which necessitated excision. This may have been a coincidence, but I am inclined to believe it was the result of infection from treatment. In the third, there occurred a small marginal abscess a short time after the first visit. After incision and drainage it soon healed, when treatment of the hemorrhoids was continued without further trouble. A complication, such as one of the above occurring now and then, serves to remind the operator of the necessity of a more careful technic.

During the year, every patient treated by the method described has been cured. It is fair to state, however, that among this number there were a few resistant to treatment, sometimes as long as twelve or fourteen weeks being required for a complete disappearance.

In another group, five or six in number, a hard, fibrous hemorrhoid would persist after the others, softer and varicosed, had disappeared. Such a condition is usually anticipated at the first visit, if the examiner is experienced, and a careful inspection is made. The patient should be told at this time that it will be necessary to excise the hard growth, which may be done before or after the softer hemorrhoids are gotten rid of by quinin and urea. In most of the cases with this complication, unless very slight, I have advised an operation at the hospital, when a complete removal of all the hemorrhoids is done.

The treatment of hemorrhoids by the injection of quinin and urea appears simple, and it is; but a thorough knowledge of rectal diseases is essential if one expects uniformly good results. Most important of all is a realization of the class of cases to which it is suited, and its limitations. I hope no physician will attempt to use the remedy until these ideas are thoroughly grasped.

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ABSTRACT OF DISCUSSION

DR. COLLIER F. MARTIN, Philadelphia: Thirteen years ago I read a paper on the "Injection Treatment of Hemorrhoids" before the American Proctologic Society. I have used the injection treatment for seventeen years, and hundreds of patients have been injected, not with phenol (carbolic acid) or quinin and urea hydrochlorid, but with a 50 per cent. proprietary phenol solution. It seems to make little difference what solution one uses, providing one gets the local inflammatory reaction with subsequent absorption, and providing the solution does not produce undue complications. None but internal hemorrhoids are to be injected. These may be readily recognized, as they always are covered with mucous membrane, and are found above the anorectal line. Internal hemorrhoids are innervated by sympathetic fibers only. The spinal sensory nerve supply is distributed to the anal skin

and tissues below the anorectal line. In other words, the injections are made only in a practically painless area.

Dr. Terrell gets good results because he knows the rectum, its pathology and its anatomy. He knows what tissues to avoid, and what symptoms to expect. The method is valuable in the hands of a man who takes the trouble to find out how to use it, and how to avoid complications. In the hands of an untrained practitioner, it is decidedly dangerous, and not to be recommended for general use. I have tried the solution Dr. Terrell recommends, but have experienced a little more trouble, probably because I did not stretch the sphincter muscles prior to starting treatment, depending on the anesthetic qualities of quinin and urea hydrochlorid to lessen the tendency to sphincter spasm. This year I reported a case of anaphylaxis occurring from the use of quinin and urea hydrochlorid. This does not condemn the solution, but should make us careful in our selection of patients.

DR. A. E. CHACE, New York: I do not think I ought to let this paper go by without a word of caution from a very young man, and a plea for real surgery in hemorrhoids. I have seen several hundred of these operations and, fortunately, only two deaths that could be attributed directly to the operation. The first was performed by means of a so-called sterile water anesthesia in the clinic. That man got a gas bacillus infection along the perineum, scrotum, thighs, and the anterior abdominal wall sloughed off before he died. The second operation was performed after the injection of quinin and urea. The prostatic plexus seemed to be first involved in the infection; there were abscesses in the liver, and death was of course caused by pyemia. Those are only two cases, it is true, but, just a word of caution: This is not a procedure that is without danger, and few procedures around the rectum, where it cannot be disinfected, are free from danger unless we have perfect drainage.

DR. D. C. MACKENNY, Buffalo: I agree thoroughly with Dr. Terrell. I have used this method a great many times in cases of tuberculous and old people, in whom one would not want to operate, and the results were all that he claimed for the treatment.

DR. GEORGE B. EVANS, Dayton, Ohio: I listened to Dr. Terrell's paper last year with not a great deal of favor and would deem myself an ingrate today if I did not rise and make an apology to him in public. On May 28 and 29 I had the pleasure of being the guest of Dr. Terrell and witnessed his work on ten or twelve patients. Unfortunately for me, none of those patients received the first injection. They were all patients who had received one, two, three, four or five injections. I also had the opportunity of being out in his waiting room. He did not know who was out there and the patients did not know I was a physician, and I listened to those patients tell what a good fellow Dr. Terrell is. They thought I was a patient. I asked them if there was any pain, and if one was laid up after the treatment, and I got a negative answer in every instance. I was there free hand and I watched this work carefully, and I want to say that I am convinced that he is doing good work and that these patients are cured. I have not only seen him inject these patients, but with his permission have examined a number of them.

DR. EMMETT H. TERRELL, Richmond, Va.: The case reported by Dr. Chase in which infection and death followed the injection of hemorrhoids is unfortunate. I think a man doing this work should be careful of his technic. The hemorrhoids must be cleaned off with an antiseptic solution and the work done with as much care as if he were doing a surgical operation. If the work is done properly there will be few complications. Of course, we are working in an area difficult to clean, and there is always a possibility of infection.

Preventive Medicine in Turkey.—The whole problem of preventive medicine in Turkey is practically untouched. It involves the changing of a whole country from a backward, unprogressive one, where filth and disease make it a real menace to the world, into a clean, liveable country, one which might become progressively a real resource to the world's civilization.—A. R. Hoover, M.D., *The Survey.*

AUTOINTOXICATION IN CHRONIC CONSTIPATION *

HORACE W. SOPER, M.D.
ST. LOUIS

The group of symptoms generally recognized as attributable to intestinal toxemia is too well known to require recapitulation. *A priori*, the most striking fact that presents itself is the great similarity between the symptoms referable to focal infection and those of intestinal toxemia. This analogy at once suggests that the toxemia associated with chronic constipation may have a bacterial origin. In other words, that an infectious agent is present in the intestine itself. This view is supported by the recent work of Lynch and McFarland,[1] Satterlee,[2] Sailer,[3] Smithies,[4] Turck,[5] Barclay,[6] and others. As a contribution to this phase of the subject I[7] have recently reported a series of cases of pus infection of the rectum and lower colon as revealed by proctosigmoidoscopy.

Clinicians have long maintained that constipation per se could not be considered a disease entity, and have pointed out that persons in good health may defecate once or twice a week without resulting subjective or objective symptoms. However, the vast majority of individuals do develop symptoms when the bowel function is inadequate. In the symposium on intestinal stasis at the recent meeting of the American Gastro-Enterological Association, Einhorn, Smithies, Lynch, Draper and others emphasized the view that a diseased intestine is really necessary for the production of symptoms incident to chronic constipation. It appears that the question of absorption of toxic material depends on the integrity of the intestinal wall.

When confronted by a case that presents symptoms that we have learned to attribute to autointoxication, our first duty is to search for foci of infection. Investigation must be made of the teeth, tonsils, nasal sinuses, genito-urinary system, and of the intestine itself, not neglecting the rectum and lower colon. When the search is conducted thoroughly, we shall find that our cases of idiopathic autointoxication will diminish in much the same manner that the term neurasthenia is now applied to a constantly decreasing number of patients. In some cases, however, the most careful search will fail to reveal a focus of infection. Even here we may presume that changes have occurred in the mucosa that at present are not determinable by our diagnostic methods. Turck's[8] suggestion that venous stasis in the wall of the intestine may produce an increased permeability to the passage of bacteria is plausible.

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

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2. Satterlee, G. R.: Chronic Intestinal Stasis, Am. Jour. Med. Sc., 1916, **152**, 727; THE JOURNAL A. M. A., Dec. 9, 1916, p. 1729.

3. Sailer, Joseph: Three Cases of Colon Infection, read at the meeting of the American Gastro-Enterological Association, May, 1917. To be published.

4. Smithies, Frank: Chronic Intestinal Stasis and Its Associated So-Called Toxemia, Surg., Gynec. and Obst., 1916, **22**, 57.

5. Turck, F. B.: Diseases Produced by the Bacillus Coli Communis in the Intestine: Etiology, Diagnosis and Treatment, Internat. Clin., **11**, 30.

6. Barclay, Harold, and McWilliams, C. A.: Intestinal Stasis, Am. Jour. Med. Sc., June, 1916, p. 822.

7. Soper, H. W.: The Mucosa of the Rectum and Sigmoid as a Focus of Infection, Boston Med. and Surg. Jour., May 31, 1917.

8. Turck, F. B.: Intestinal Venous Stasis; Diffusion of Bacteria and Other Colloids, Boston Med. and Surg. Jour., **176**, 663.

We must admit that toxemia may result from chemical changes in the intestinal contents. In this connection the phenomena of anaphylaxis as exhibited by food sensitization must be borne in mind.[9]

Abnormal metabolism of the food protein is a factor to be considered in the production of intestinal toxemia. This aspect of the question is well stated by Brown,[10] who says:

> Back of the mechanics of digestion lies a problem far more complicated, far more difficult to solve, the problem of congenital or acquired hypersensibility to certain stimuli; the question of the overproduction of certain toxic substances, their chemical nature and their possible specificity, and various other questions involving more definitely physical factors, notably absorption and osmosis.

Brown's cases showed marked improvement on a low protein diet. In my own work I have often noted the good effects produced in certain cases of toxic headaches by sharply limiting the protein and reducing or omitting sugar from the dietary. Patients of this class usually present excessive indicanuria, much colonic flatus, and frothy fermentative feces. Moreover, they are, as a rule, in the habit of consuming large quantities of cane sugar. Possibly the presence of an excess of sugar may be a factor in determining the defective digestion or utilization of the food protein in susceptible individuals. Apropos of the carbohydrate element, the work of Pemberton[11] is especially interesting. He produced good results in cases of rheumatoid arthritis by a radical reduction of the carbohydrate in the dietary.

Besides bacterial infection, disturbances in the mechanics of digestion, and aberrant biochemical processes, we must consider a fourth important factor in the development of toxic conditions, namely, the central nervous system. Disturbances of metabolism are frequently encountered in the observation of the functional psychoses, particularly the manic depressive type. One such case deserves special mention. A patient whom I have observed in conjunction with Dr. Frank R. Fry, for the past three years, developed during the depressive phase, glycosuria, acetonuria, and indicanuria. In the intervals between the attacks, the urine is entirely free from these substances. Numerous cases could be cited in support of the contention that toxic states may arise primarily as a result of disturbances in the central nervous system, that they are frequently evanescent in character, and that they disappear regardless of the form of treatment instituted. I emphasize the nervous element in these cases particularly as a warning against giving credence to reports of cures, especially operative results, in patients of the manic depressive type. Milder forms of psychic and somatic disturbances are also elements of importance in the consideration of the etiology, symptomatology and treatment of intestinal toxemia.

The indiscriminate use of cultures of the *Bacillus bulgaricus*, now so much in vogue as a remedy for autointoxication, is open to serious objections. Even in carefully selected cases its value as an adjunct to treatment is questionable. The prevailing impression in regard to its therapeutic worth is probably due to the great food value of fermented milk. Another reason for its popularity is that it offers a remedy that the busy doctor may use without subjecting his patient to the ordeal of a carefully adjusted regimen.

The researches of Herter and Kendall,[12] Raehe,[13] Rettger,[14] Horton,[15] Hull[16]; Einhorn, Wood and Zublin,[17] and Rosenberg,[18] and others have shown the fallacy of attempts to secure the implantation of the *Bacillus bulgaricus* in the intestinal tract. Furthermore, they have demonstrated that diet is the most important factor in determining the character of the bacterial flora.

From the standpoint of economics, the loss in this country must be enormous, when we consider the large expense incurred in the production and distribution of cultures of the *Bacillus bulgaricus*.[19]

The daily use of purgatives is contraindicated, since they disturb the normal peristaltic rhythm. Moreover, the practice of flushing the colon by drugs or the use of water enemas is objectionable, because such procedures result in the reduction of the contents of the colon to a liquid or semiliquid state, a condition that probably facilitates the absorption of toxic material. I have made frequent sigmoidoscopic examination of such cases and have found that the mucosa is constantly coated by a layer of thin fecal matter. The same condition is present in many cases of chronic diarrhea—cases which exhibit marked symptoms of intestinal toxemia. In these cases we have a real "stasis," different from the usual conception of an accumulation of a large mass of fecal matter, but a retention probably much more injurious to the mucous membrane of the bowel.

CONCLUSIONS

1. Treatment should be directed against any existing infectious agent.
2. Reliance should not be placed on the *Bacillus bulgaricus* as a corrective agent.
3. The regular use of cathartics and water enemas must be avoided.
4. An initial radical change should be made in the dietary in an attempt to alter the bacterial flora.
5. The problem of the restoration of colonic function may demand the employment of all our therapeutic resources, medicinal, dietetic, hygienic and surgical.

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19. Manufacturers of the tablets and liquid cultures do not state in their literature that the fermentation of milk can be carried on simply by reserving a small portion of the fermented milk as a "yeast" to be added to the milk instead of using a tablet each time. I know of many housewives who successfully ferment the milk in this manner and who rarely resort to the tablet or liquid culture.

Husband and Wife—Remedy of Wife for Sale of Opium to Her Husband.—Where the disabilities of coverture are removed and the statute gives every person a right to damages for detriment suffered from the unlawful act of another, a woman, it is held in the South Dakota case of Moberg v. Scott, L.R.A.1917D, 732, may, under the statute and a common law, recover damages for loss of consortium and support through the unlawful sale of opium to her husband.

ENTEROCOLONIC CONDITIONS IN CHRONIC CONSTIPATION *

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The fact that constipation has been and is under continuous discussion shows conclusively the lack of perfect knowledge emanating from any source. In this paper I shall include stasis and obstipation under the general term of constipation.

No doubt there is an element of truth in the various explanations of constipation, but it may be safely asserted that many of these explanations require further elucidation. In dealing with this question the surgeon and the general practitioner are apparently arrayed against each other, but, as a matter of fact, the views of both contain much that is true. The great difficulty is for us to see every phase of this immense subject.

In the first place, some thought must be given the more elementary aspects of the question. The whole scheme of alimentation provides for the onward progress of the ingested food; at some points it is retarded, while at others it passes with considerable rapidity. Wherever the ingesta are normally retarded, we are most likely to find increased delay in the progress of the intestinal contents; therefore, it is at those points that we note the greatest tendency to constipation.

Since provision has been made for the food to pass easily through the lumen of the small intestine, we do not frequently find here conditions which give rise to constipation. The character of the food ingested, and the conditions controlling the intestinal, hepatic and pancreatic secretions, together with certain varieties of catarrh do, however, have some influence in the production of constipation. The hepatic secretions, catarrhal inflammations and foods must not be considered lightly in this connection.

The first portion of the intestinal tract where we observe stagnation of the contents is in the terminal ileum. At this point there exists an anatomic obstruction which materially retards the onward progress of the ingesta, the muscle fibers of the terminal ileum being thickened and thus offering greater resistance than the intestine above.

The next point offering obstruction is the ileocecal junction, the lumen here being diminished and also further constricted by circular muscular fibers which permit more perfect control of the ileocecal opening.

CAUSATIVE FACTORS IN CONSTIPATION

In the large intestine are found the chief causes of chronic constipation, the cecum and ascending colon being concerned either directly or indirectly in a large percentage of cases in which patients complain of this symptom. Many reasons may be adduced to explain the frequent stagnation in the right colon.

1. The anatomic arrangement of this segment of the colon is such that it naturally retards easy progress of its contents. The large intestine from the cecum to the sigmoid becomes progressively smaller, the variation between the two extremities being approximately three to one. Thus it may be seen that material forced from the cecum toward the sigmoid will require a pressure from behind many times greater than if the lumen were not diminished.

2. The watery elements of the material emptied into the cecum are rapidly absorbed by the cecum and ascending colon. Because of the obstruction at the hepatic angle, the decrease in the colonic lumen, and the denser consistency of the feces, considerable force is required to propel the ingesta downward into the sigmoid.

3. A most potent reason for stasis in the cecum and ascending colon, and one which is generally overlooked or ignored, is the tightly contracted muscles controlling the terminal outlet of the intestinal tract. Not only are these powerful muscles in a state of tetanic contraction, but there is often sufficient irritation in the rectal and sigmoidal walls to cause an unnatural contraction, thus materially diminishing the normal capacity of these organs for the reception of feces. In every case of chronic constipation it is imperative that these organs be thoroughly investigated. At the time of operation for some rectal lesion, doubtless we have all noted both the sigmoid and rectum filled with water and feces, notwithstanding that a purgative had been administered twenty-four hours previously, and an enema not more than two or three hours before the operation. Again, we frequently hear patients say their "bowels are paralyzed," meaning that when they have a desire to defecate they cannot command sufficient force to expel the feces from the rectum and sigmoid. There is no paralysis in such cases, but on the contrary there is a spasticity which cannot be overcome by normal efforts.

4. There must be a normal balance of intracolonic pressure for defecation to occur normally. If there are contracted segments from irritation and the lumen is thus diminished, there must result a tendency to constipation. On the other hand, if the mucosa of the entire large intestine is actively inflamed, the walls become thickened and contracted, the lumen is materially diminished, an excessive amount of mucus is secreted, the feces are forced onward without time for absorption of the watery elements, and we then have the other extreme, namely, diarrhea.

5. Not infrequently the entire colon is found much larger than normal. Under such circumstances it is easy to understand that a given amount of material cannot pass through the colon with average rapidity when the lumen is large and the walls are unable to contract down on the contents. If the colonic lumen is comparatively small, which of necessity means thicker and more powerful muscle fibers, the contents will be propelled more certainly and effectively. The muscle fibers in the dilated colonic wall are attenuated and weak and, therefore, cannot contract on and move its contents forward with an equal degree of certainty.

6. It must also be conceded that a long transverse colon and redundant sigmoid present a physical condition more difficult for nature to cope with than when these parts of the bowel are of average normal length.

7. It seems useless to add that any growth in the intestinal lumen may cause obstruction and constipation, such as cancer, etc. Of course, as stated in the beginning of this paper, we include under the term constipation those conditions often referred to as stasis and obstipation.

With the feces in a liquid state a great deal of obstruction must be present to prevent fairly easy progress through the colon to the terminal outlet; it is the hard and formed fecal material which passes with difficulty along its course. We can readily under-

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stand how much more easily patients expel thin and unformed feces from the rectum than when the excreta is formed and hard; and the same holds true of the passage of fecal material along any portion of the intestinal tract.

I wish to remark at this juncture that the condition just mentioned is one of great importance. Many surgeons have performed colostomies in one way or another modifying to a greater or less degree certain points in the technic of the operation, and the patients had little difficulty in control through the artificial opening. The surgeon at once concluded that the modified technic in his operation was responsible for the excellent artificial control. Whatever that modification may have been, no technic has ever been devised whereby colostomy may be done and have any degree of satisfaction in artificial control, with the colonic contents in a liquid state. On the contrary, so far as control is concerned, almost any colostomy will be a success with the fecal contents well formed while passing through the transverse and descending colon.

The same deception applies to destruction of the sphincter muscles in operating for rectal cancer, etc. With the colonic contents dry and formed when passing downward through the sigmoid and into the rectum, any control at the terminal outlet by the sphincter muscles can scarcely be necessary. Owing to the deep hollow in the sacrum, and the provision made by the sigmoid for retaining the feces, exit is delayed until forced forward by the accessory muscles of defecation, aided by peristalsis.

Attention is called to the foregoing facts because they illustrate more forcibly than any other argument I could present, the importance of understanding the difference in the amount of power required to move forward the colonic contents in liquid and solid forms.

8. In addition to the foregoing causative factors in constipation, it is my opinion that there is no element which plays a more important rôle than that of bacterial life. The organisms are so numerous, they thrive and multiply under so many varying circumstances, that it is impossible with our present understanding of germ life to properly estimate their full influence as causative factors either directly or indirectly in the production of constipation. The intestinal tract is so constructed that there is the least possible tendency for friction or the adherence of material to the mucosa. The greatest possible provision has been made for the easy movement of the ingesta by the polished epithelial surface of the mucosa, with the production of abundant mucus, which is unequaled as a lubricant.

The first effect that bacteria produce as a causative factor in constipation is an inflammatory reaction in the mucous membrane. The superficial cells become roughened by granulations, which has a marked effect in retarding the progress of the intestinal contents because of the disposition for material to adhere to the roughened surfaces. Many patients would be affected with pronounced constipation, when the mucous membrane is in this chronic state, were it not for the production of an abundance of mucus which compensates for this defect. When inflammation is active and mucus is produced in large quantities, and when the irritation is sufficient to cause contraction of the intestinal wall, we have the other extreme, namely, diarrhea. As will be mentioned later, a large percentage of constipated individuals give a history of having had, a number of years previously, an attack of some acute inflammatory disease involving the intestinal mucosa. These inflammatory areas are what might be considered the direct influences of bacteria on the intestinal mucosa.

The second influence of bacteria as factors in the production of constipation is on the musculature of the intestinal wall. As already suggested, the effect of very active bacterial life on the intestinal mucosa, whether there be ulceration or not, with the irritation of the nerve endings in the mucous membrane, the exaggerated contraction of the muscular wall, and an abundance of mucus, all taken together, produce diarrhea or dysentery. When there is gradual subsidence of the irritating effect of bacterial life on the tissues, then the intestinal walls begin to relax, the overstimulated mucous glands contract and produce a diminished amount of mucus, and the epithelial cells become granular from the chronic infection present. This stage, though months or years may have elapsed since the initiation of the infection, may be the beginning of chronic constipation. As the musculature relaxes under the influence of bacterial infection, with consequent increasing dilatation of the intestinal wall, an increased atrophy of the mucous glands, and also an increased granulation of the diseased epithelial cells, the constipation becomes more pronounced. We must recognize, however, that the degree and type of bacterial activity extends over, and may be responsible for, an infinitely wide range of varying symptoms.

The infection may be confined to comparatively narrow limits in the intestinal tract, or it may include the entire large intestine and the lower portion of the ileum. It may never invade the intestinal serosa, or it may produce extensive veils, bands and adhesions. The infection may be very mild and affect the epithelial cells of the mucous membrane only to a small degree, or it may affect the mucosa and the musculature and not the serosa. The character and activity of the germ life may be exceedingly mild or very severe. While some authors deny the existence of such a type of constipation as that recognized as spastic, it is true that certain types of irritation do exist wherein segments of the colon contract with unusual force and thus act as a source of mechanical obstruction to the progress of fecal material.

I have under observation at the present time a patient who has this condition in a most exaggerated degree. With the patient placed in the inverted position there is no difficulty in seeing one tightly contracting ring after another as the sigmoidoscope is introduced into the pelvic colon.

Again, the infection referred to often extends to the tissues of the anal outlet, and, as I have previously stated, it is at this point where we observe the most pronounced contractions to be found anywhere along the entire alimentary tract. In my opinion more stasis is produced in the large intestine and the terminal ileum by spastic contraction of these muscles than by any other factor entering into the etiology of constipation.

It is so seldom that examinations are made of the rectum, or rather the muscles controlling the rectal outlet, that it is quite impossible to estimate the magnitude of this phase of the subject. When due consideration is given this question it will be recognized that every abnormally contracted sphincter muscle is pathologic, and is a factor tending toward the production of constipation. The muscles may be very much hypertrophied and tightly contracted, and yet the

patient may not complain of constipation. Under such circumstances, however, there are compensatory conditions existing higher in the intestinal canal whereby the contents are rendered either especially thin, the mucosa is unusually well lubricated, or some exaggerated lesion is present.

I will state that the chronic types of infection found at the rectal outlet are in some instances the most obstinate benign conditions that we have to contend with from the standpoint of effecting permanent relief, and this point should be borne in mind in all cases.

I have been especially interested in the source of these infections which play such an important part in constipation. It has been my observation that almost all of them have their origin in early infancy where the digestive apparatus remains deranged for a long period, or in some acute intestinal disease, such as typhoid fever, amebic infection, so-called flux, hookworm disease and other forms of infection. These attacks may have occurred years previously, yet it is significant when we note the large number of persons who have constipation and who give such histories.

Other enterocolonic lesions noted in constipation, with which you are familiar, and which have been extensively discussed during the last few years are veils, bands, adhesions and allied conditions. While these may be important factors in a certain number of instances, doubtless their significance has been greatly overestimated. In other words, there are many cases of obstinate constipation in which veils or bands are present, but if the other causative factors were removed and the veils allowed to remain, the patients would be completely relieved. Without making extensive reference to the cause of these bands and adhesions, it appears most logical that they are the results of bacterial activities, having their origin in the intestinal lumen during typhoid fever, amebic infection, flux and other inflammatory conditions. It seems to me that proof beyond peradventure has been established showing the relationship between these accessory tissues and the various infections just mentioned.

It is surprising to note the number of patients who complain of pain simulating appendicitis, in whom there is a previous history of acute intestinal infection followed, perhaps years later, by constipation, indigestion and other conditions resulting from bowel inactivity. At operation the blood vessels in the serous coat overlying the colon and appendix are found engorged, adhesions and veils are present, and the appendix is removed without subsidence of the constipation and pain. These facts show the intimate relationship between the infection, constipation, bands, veils and other results of inflammation.

I wish to refer briefly to the question of ileocecal insufficiency. That there is more frequently a reflux of the cecal contents into the ileum than was formerly supposed cannot be doubted. In a very large number of patients it has been found that one out of six has ileocecal incompetency. An ingenious operation has been devised for the correction of this defect, but it has not been satisfactorily proved that the method always gives permanent relief. If stasis in the cecum and ascending colon is the chief factor in producing ileal regurgitation, then it is evident that the cause of the stasis should be determined and relieved.

I have referred to the powerful influence of the tightly contracted, irritable and hypertrophied muscles controlling the rectal outlet, the dry condition of the colonic mucosa and the other conditions recognized as factors in the production of constipation. If these conditions exert as potent an influence as suggested, and there can be no doubt that they are important forces in producing stasis in the right colon, then it would be logical treatment to remove the cause, after which it is more than probable the ileocecal defect would be corrected. I think this is a point at least worthy of consideration.

In conclusion, I wish to emphasize that we, as physicians, should view this subject in its broadest sense. We will be able in this way to glean the facts necessary for a comprehensive understanding of the question much more successfully than by studying it from a narrow and contracted standpoint.

RECTAL CONDITIONS IN CHRONIC CONSTIPATION *

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Prima facie, nothing appears easier than the diagnosis of chronic constipation. Nevertheless, in not a few cases, it may be an exceedingly difficult task to determine accurately the etiologic factor. Many cases are due to mechanical causes which, not infrequently, are never recognized or even suspected. With the improved modern methods of examination at our command, physical, gastric analysis, examination of the stool, roentgenology, and proctologic examination, to which is added the clinical subjective signs and symptoms, an accurate diagnosis can and should be made in the majority of cases.

No case of chronic constipation is diagnosed correctly or should ever be treated as such, until a thorough proctologic examination has been made. The rectum, in many cases, is found distended with feces, the patient not experiencing the slightest sensation of its presence and having no desire whatever for stool. This rectal stasis may be atonic in character, or it may have its origin in definite rectal conditions. If atonic, it usually has its onset early in life. Repeated and prolonged inattention to the calls of nature, such as indolence, absolute disregard, and even resistance, obtund the nerves of the rectum so that they do not respond to stimulation. Murray attributes this loss of the sense of rectal pressure to "carelessness, ignorance and laziness."

Rectal conditions, as a rule, are easily diagnosed by a thorough proctologic examination. This examination, by itself, is insufficient, and, in many cases, will not determine positively that the constipation has its origin in rectal conditions. I cannot emphasize too strongly the fact that identically the same rectal conditions may cause chronic constipation in one patient and yet have no appreciable influence in retarding the excretion of feces in another. If repeated digital examinations of a patient who has been given neither medicines nor enemas reveal a large amount of feces in the rectum, this alone should cause us to be suspicious of a rectal stasis. If the rectum is found to be almost or quite empty, we should feel reasonably certain that the constipation is due to delay higher up; and yet, we should not overlook the possibility of the

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delay higher up having its origin in some rectal condition. In many cases, roentgenoscopy as applied by a skilled roentgenologist, which implies careful fluoroscopic study and many roentgenograms showing the passage of the barium meal through the alimentary tract, is the only method of examination at our command by which we can ascertain with any degree of precision or absolute certainty that constipation is of the rectal type. If rectal stasis is diagnosed, the presence or absence of rectal conditions is easily determined by a proctologic examination. Such a diagnosis enables us to assume a more positive attitude as to our ability to cure the constipation by correct treatment of the real etiologic factor.

In ulcerations, acute or chronic, of the anorectal region, defecation is frequently voluntarily inhibited from fear of the pain produced in the act. The sphincter muscle is in an irritable state, and the presence of feces in the rectum apparently excites it to frequent and prolonged contractions or spasms, with a resulting hypertrophy that may cause actual obstruction. Matthews holds that many cases of constipation are the result of spasm or hypertrophy of the external sphincter muscle, and in cases in which it has been cured by hemorrhoidectomy, the real benefit has been derived from the divulsion of this muscle. Hypertrophy of the levator ani muscles, according to Gant, may result from chronic pelvic, uterine, vesical and rectal diseases, and by contracting the sides of the rectum, may induce constipation. I have never encountered a case of chronic constipation that could be attributed to this condition. Hypertrophy of the circular muscular fibers of the intestine at the juncture of the sigmoid and rectum may also be a causative factor. This is a very rare condition, and it is not easy of diagnosis.

The rectal valves of Houston have been the cause of much discussion. That they are at times abnormally developed, that they can and do become hypertrophied, and that they may and do obstruct or impede the fecal current cannot be denied. However, my own findings have not been such as to enable me to corroborate the statements of surgeons of longer and much larger experience, that these valves are a very frequent cause of constipation. Hirschman says:

> Patients with so-called constipation who have run the whole gamut of cathartics, enemata, massage, dietetics, electricity, osteopathy, and Christian Science, have not been relieved until they have had proper proctologic examination and the enlarged rectal valves which were discovered relieved by valvotomy.

In every case of chronic constipation, the valves of Houston should be studied.

Hemorrhoids, both external and internal, may cause constipation, especially when they are inflamed or thrombosis has occurred in them. The real causative factor in such cases is the hypertrophy of the sphincter muscles, the result of constant irritation and spasm. Hemorrhoids may also attain such a size as to block or obstruct the anal canal.

Intra-intestinal tumors, such as polypi, adenomas, papillomas and fibromas very seldom attain sufficient size to retard or obstruct the excretion of feces. I recall two cases in which constipation was the result of a rectum practically filled with polypi. When complicating other rectal conditions, such as anorectal ulcerations or hemorrhoids, these intra-intestinal tumors must be reckoned as a possible etiologic factor in constipation. So long as polypi remain well up in the rectum, patients, as a rule, are not aware of their existence. When they prolapse, they may cause sphincteric spasm and hypertrophy. Prolapse of the rectum, especially when the upper portion becomes invaginated into the lower and protrudes through the anus, may cause obstipation.

Stricture of the rectum, cicatricial or malignant, always causes more or less obstipation. If well advanced there may be a combination of obstipation with a nagging, teasing diarrhea.

In fecal impaction, rectal in type, there may be a constant desire to go to stool, with an inability on the part of the patient to evacuate the mass. The levator ani and sphincter muscles may be injured. As a result of frequent and long continued spasmodic contractions, they may become hypertrophied to such an extent as to be the cause of chronic constipation after the fecal impaction has been removed.

Foreign bodies in the rectum may cause obstipation, and the symptoms are practically the same as those of fecal impaction. The foreign bodies may have been swallowed, introduced into the rectum by accident or for the purpose of concealment, or for the relief of certain symptoms.

Extrarectal conditions, such as enlarged prostate, stone in the bladder, urethral stricture, uterine and ovarian tumors, uterine displacements, pelvic inflammatory diseases, perineal lacerations, rectocele, and deformities of the coccyx are not infrequently the primary cause of the rectal type of chronic constipation.

Retroversion of the uterus, by its pressure on the rectum, may cause a partial obstruction of the fecal current, or by interfering with the normal muscular movements, diminish its expulsive force. The same is true of a heavy uterus or a large uterine fibroid, an impacted myoma, or an ovarian tumor growing between the leaves of the broad ligament and complicated by pelvic adhesions, so that it cannot move freely. Severe puerperal parametritis may involve the rectum to such an extent as to constrict its lumen even to complete occlusion.

Rectocele, as a rule associated with cystocele and prolapsus uteri, the result of extensive lacerations of the perineum involving the triangular ligament, rectovesical fascia, and anterior portion of the levator ani muscles, may render defecation impossible without manual reduction of the prolapsed parts. Hemorrhoids and other rectal conditions are not infrequently the result of these relaxed conditions, and tend to aggravate the constipation.

Gant reports two cases in which there was an orange-sized opening 2 inches above the anus, with a pouch which passed downward and backward, displacing the coccyx posteriorly; also two cases in which there was congenital absence of the coccyx, with bulging posteriorly of the lower rectum. Constipation was the result of these conditions. Sacrococcygeal tumors, and deviations of the coccyx, especially when the lower segments are fixed and project inward at a right angle with the sacrum, may be the cause of delay in the excretion of feces.

Stone in the bladder, urethral diseases and enlarged prostate may produce sphincteric spasm, with subsequent hypertrophy and constipation.

Enemas are an excellent occasional resource and of undoubted value in selected cases. In the majority of cases, however, the daily routine practice of introducing large quantities of fluid, often irritating in char-

acter, is not only injurious, but tends to aggravate, rather than to relieve or cure the constipation. John Burne, in his treatise on the causes and consequences of habitual constipation, published in 1840, says:

Previous to the great intercourse which has taken place between France and England since the peace, lavaments were looked upon with disgust and horror, and had recourse to only on extraordinary occasions. Now they are in common use. As a means of obviating habitual constipation they are employed by some persons daily, with the effect of exonerating the large intestine more or less. However efficient they may, in this respect, appear to be, I have found from long observation that they are not free from very great objection. In the first place, they do not continue to relieve the bowels fully and freely for any length of time. In the next place, they do not dispose the bowels to resume their natural action, but, on the contrary, render them more confined. In the third place, they wash off the mucus from the intestine, which is followed by a degree of irritation and an unpleasant sense of heat, very similar to that which occurs after washing the hands in water simply. In the fourth place, the feces become more scybalous and hard under their use. And lastly, the individual does not feel the comfort or conviction of having had his bowels fully relieved, on which account he is often induced to resort to a second lavament on the same day. Lavaments fail in completely obviating or curing habitual constipation.

In every case of chronic constipation, the anus, perineum, buttocks and genital organs should be inspected and palpated, and any abnormality of these parts which might cause sphincteric spasm, occlude the anus, or in any way interfere with the excretion of feces, should be carefully noted.

Digital examination is next in order, and since most rectal pathology is to be found within the first 2 inches from the anal outlet, it is our most valuable method for detecting rectal, and even extrarectal, conditions, which, alone or together, may be responsible for delay in the passage of fecal matter. Much unnecessary suffering is the result of hurried digital rectal examinations. When the sphincters are so sensitive or tightly contracted as to prevent digital examination being accomplished without great pain to the patient, Hirschman advises dilation of the sphincters by means of local anesthesia.

Internal inspection of the anus, rectum and sigmoid is demanded in every case, and is made with the patient either in the knee-chest, the knee-shoulder, or the Sims' position. Such an examination enables us to diagnose accurately a pathologic condition involving these parts. It is essential that the rectum shall have been emptied of feces before this examination is begun. Force should never be employed in the introduction of the anoscope, proctoscope or sigmoidoscope, and it requires not a little practice in order to introduce these instruments properly and painlessly.

The treatment of chronic constipation implies the treatment of the various conditions that cause it. Rectal conditions, either alone or complicated by extrarectal conditions, are frequently the cause of deficient or retarded fecal movements. Chronic constipation is not infrequently the cause of hemorrhoids, ulcerations, excoriations, sphincteric spasm and hypertrophy. No matter whether the rectal conditions are the cause or the result of chronic constipation, their appropriate treatment, medical or surgical, is clearly indicated if a cure of the constipation is to be effected.

When the fecal stasis is the result of an atonic rectum, I have secured the best results from direct stimulation by means of mechanical dilatation, such as has been recommended and practiced by Turck, McMillan, Teachnor and Hirschman. Regarding this treatment by direct stimulation, John Burne, in his interesting treatise on constipation, published seventy-seven years ago, says:

The bougie may, I think, be had recourse to with advantage more frequently than is customary in the treatment of habitual constipation, and some of its consequences. A bougie of moderate size introduced into the rectum and allowed to remain some minutes has been found on withdrawal to be followed by an action of the bowels. Employed for this purpose, it should be introduced 8 or 9 inches, so as to arrive at and dilate the upper part of the rectum, which, according to O'Beirne, is always contracted and in a state of spasm. The most convenient time for its employment is before rising in the morning, and its use should be persevered in daily by the patient himself.

CONCLUSIONS

1. No case of chronic constipation is diagnosed correctly or should ever be treated as such until a thorough proctologic examination has been made.

2. The same and identical rectal conditions may cause constipation in one patient, and have no appreciable influence in retarding the excretion of feces in another.

3. In many cases, proctologic examination alone will not determine positively that constipation has its origin in rectal conditions. It must be supplemented by a careful roentgenographic and fluoroscopic study of the alimentary tract. Such a diagnosis insures the patient correct treatment and satisfactory results.

4. Rectal conditions are frequently the primary causative factor of chronic constipation. On the other hand, constipation may be the cause of various rectal conditions. Whether the cause, or the result, of chronic constipation, the appropriate treatment of rectal conditions is essential if a cure is to be effected.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SOPER, HANES, AND GRAHAM

DR. HENRY ILLOWAY, New York: I fully concur in the statement that whatever value the Bulgarian bacillus has lies only in the fermented milk, its carrier, when that is permissible, and that it offers a remedy to the busy practitioner who is not familiar with all the intricacies of diets.

This matter of autointoxication is so harped on in the medical journals that most physicians have become convinced that every ailment, great or small, has its origin in the intestinal canal. The manufacturers of drug combinations have not been slow to seize on this, and circulars with reports of cases full of the horrors of autointoxication, with big headings and thick type, *"Clean up, Clean out,"* are showered on us daily.

We have had a whole series of morbid conditions thrown together into one bag, as it were, and labeled chronic constipation. Constipation may be a morbid entity, or it may be merely one of a group of symptoms of an underlying pathologic condition. When constipation is due to a fissure of the anus, or to abnormal development of hemorrhoidal tumors, or when it occurs in the course of cancerous disease of any part of the intestinal canal, it is not proper to call the case one of chronic constipation. The constipation is only one of a group of symptoms, which, if carefully studied, will disclose to us the pathologic condition that gave rise to it. When we speak of chronic constipation as a morbid entity, then we can mean only that form of constipation usually spoken of as habitual constipation, the consequence of an atony of the intestinal muscles.

The authors of the papers have not set forth the precise symptoms by which they diagnosticate the autointoxication due to chronic constipation. It is, however, just these details

that would enable us to judge what they regard as auto-intoxication. Symptoms are susceptible of varying explanations.

DR. DUDLEY ROBERTS, Brooklyn: The gastro-enterologist needs to know more of proctology and vice versa. Auto-intoxication is the fad of the day. While there are normally sensations arising from the filled sigmoid and rectum and a sense of well being attending satisfactory defecation, the hypochondriacal individual makes too much of such sensations. I am of the opinion that the symptoms that arise from stasis in the distal colon are largely pressure phenomena associated with hypochondria. I doubt that they are toxic. When infection of the part is added, it is quite another story.

Stasis in the right half of the colon, on the contrary, does, it seems to me, at times result in toxemias. What the toxic substances are and why they get to and through the liver we do not know. Our work on this subject will be unsatisfactory until we have a test of blood or urine that is more than slightly suggestive. Clinically we have such conditions. These individuals may or may not be constipated. Even in cases with diarrhea one sees long stasis in the right half of the colon. Dr. Soper has spoken of the infections of the colon; and while they may no doubt play a part, I do not feel that they represent more than a small group. I think that we shall find one of the most profitable fields for study in the anaphylactic group. From my experience I am convinced that, in some cases at least, stasis in the terminal ileum and cecum is responsible for the sensitization we see in some individuals. There is some reason for believing that some of the chronic arthritic groups are truly toxic rather than infectious. In addition there are cases such as were described by Satterlee. I feel that in these cases one should accept as a last resort the explanation of symptoms as due to intestinal intoxication, and then only when abnormal stasis in the ileum or right half of the colon can be clearly demonstrated. We must not lose sight of the fact that there are many possibilities of autointoxication from disturbances of metabolism in the liver, in the muscles and other tissues. We must always keep in mind the possibility of abnormal glandular activity as a cause of so-called intoxications. On the whole, I am inclined to the opinion that while in a small proportion of cases we have to deal with a true intestinal toxemia, the tendency at present is greatly to exaggerate its frequency and importance.

DR. WALTER A. BASTEDO, New York: Among the causes of constipation Dr. Hanes included the diminution in the size of the colon from above downward, the lower part of the colon having only one third the lumen of the upper part. But I do not think that this in the slightest degree is a factor in producing constipation. The small intestine passes the food residue along at a rapid rate and empties it into the cecum quickly, because it has a special form of peristalsis; but, fortunately for us, the same kind of peristalsis does not take place in the colon, and ordinarily the food residue takes many hours to get down into the pelvirectal reservoir. In the process the contents lose much bulk, and there is no evidence that the tapering lumen is in any sense an obstruction.

In working with the intestines of animals one can make a considerable obstruction, particularly to the small intestine, and still, if there is peristalsis, observe the feces perfectly well pass the obstruction, the kink, or even a moderate weight put on the intestine. Indeed, a kink often straightens through peristaltic action, and unless it makes an anatomic stricture of marked degree, or spasm resulting from irritation, it is unimportant as a cause of constipation.

I believe that heredity is a very distinct factor in making "kinds" of bowels. I have known a family in which three members had the appendix removed; also two cousins, making five appendixes of blood relations. In all five the appendix was retrocecal. This was known as a constipated family, yet each member who had the appendix removed has become free from constipation. In another instance I saw a grandmother who had achylia gastrica, the daughter also had achylia, and the young granddaughter of 18 years had achylia. On the other hand, the grandfather, as shown by the roentgen ray, had a very redundant colon, a large sigmoid, and a movable cecum which crossed the sigmoid. The daughter had the same kind of colon, and the granddaughter has that kind of colon now. The grandfather, the daughter and the granddaughter have shown a severe degree of intestinal poisoning, but the grandmother, who has the achylia gastrica but not the redundant colon and cecum mobile, has never shown intestinal poisoning and is now a very old woman. I think that heredity from the two grandparents made a bad outlook for the two generations below.

DR. JOSEPH C. BLOODGOOD, Baltimore: I think perhaps it may be of interest if, in a few words, I give you, as a surgeon, my experiences with lesions of the colon other than cancer, of which perhaps the larger group covers a condition associated with chronic constipation and what may accompany that; that is, leaving out all the cases in which, from a cross examination, there is no pathologic condition of the colon—no colitis in the sense of an ulcer, no organic stricture the result of an ulcer, no multiple polypoid tumors, no diverticulitis, no appendicitis—at least outside of the appendix in the region of the cecum—but a patient with chronic constipation and following, with its duration, other symptoms. I do not believe this is a single disease; I feel that it is a terminal disease. I want to impress that on you. My experience is that in the beginning I operated on more patients than I have in the last two years. I think my entire number is sixty, and in the last two years I have had two. Now, what is the explanation of that? In the first place I have never proceeded to an operation in any of these cases unless the patients were referred to me by medical colleagues who told me that they had done everything they could and wanted some help from surgery. Now, why has that taken place? One explanation is that there are more well trained gastro-enterologists in the clinic. This is absolutely true in my clinic, because, until a few years ago, we had no department at Johns Hopkins, or associated with me at St. Agnes, but since we have had such a department the men in my own room see more patients and operate on less.

Is all the credit due to the gastro-enterologists, or is there another element? I feel there is another element. Even if we cannot agree with Lane, and feel that some of the surgery, much of the surgery, or even all of the surgery of this type of colon lesion of the past has not been justified, nevertheless he has given to the colon, not only to the profession but to the public, more publicity than any other method of treatment.

DR. EMMETT H. TERRELL, Richmond, Va.: It is absolutely essential for success in the treatment of constipation to be able to distinguish between conditions due to general causes and those resulting from obstruction. At times it is easy, but frequently an examiner is called on to exert all his ingenuity to define these cases. I find that a great many people are constipated because they think they are constipated. By that I mean that they are so in the habit of taking pills each night on retiring that they never give the bowels a chance to move naturally. If these people can be induced to stop the use of laxatives for a short time, with the proper regulation of their diet and the administration of a little petroleum oil, a great many cases will respond readily and without trouble.

I should like to refer for a moment to a condition commonly called mucous colitis. In these cases, while there are frequently several movements of the bowels in twenty-four hours, the patients are really constipated. The ordinary remedies which have been suggested for the treatment of mucous colitis in my hands have been absolutely worthless, and, in fact, I think irrigations of the rectum and the colonic flushings with various medicinal substances do more harm than good. I hesitate to suggest a remedy which has been found very beneficial because I cannot explain its action. I refer to the administration of large doses of bile salts.

DR. JEROME MEYERS, New York: I have followed the subject of intestinal autointoxication for a number of years and believe it is a mistake to speak of autointoxication. It is better to use the term indicanuria. The most important causes of indicanuria are improperly digested protein, the colon bacillus, constipation, with injury to the intestinal mucous membrane, possibly a lack of detoxifying power of

the liver, and possibly the reaction of the intestinal contents, whether acid or alkaline.

I was interested in Dr. Soper's mention of sugar in autointoxication. Sugar does not give indican, but indolacetic acid in the urine. I followed this for a number of years, but obtained no practical results either in treatment or the examination for this acid in the urine.

With regard to protein decomposition and the colon bacillus, in fully fifty cases I have obtained results with the Bulgarian bacillus. I cannot agree with the gentlemen who hold that this treatment is of no value. Together with a low protein diet, I have seen it repeatedly clear up the most marked indicanuria in one to three weeks. One can expect no results unless a live bacillus is used and its use is persisted in for at least three weeks. The more ptotic the intestines are, the more difficult it will usually be to clear the urine of indican.

One other consideration is of importance—the intestinal mucous membrane itself, not only through possible gross defects, allowing indican to reach the portal blood, but the escape of indican through physiologic changes in the membrane, either of osmotic pressure or acidity or alkalinity. Protein decomposition is an alkaline process. It is interesting that the use of the *Bacillus bulgaricus*, which causes an acid reaction, should cause a diminution in the amount of indican. Again, in the use of Carlsbad or Vichy salts, both of which are strongly alkaline, I have been highly interested to note that whether the protein were restricted or not, or whether *B. bulgaricus* were given in conjunction or not, the amount of indican in the urine, even though the patient felt better, was never very materially decreased, and might even be increased.

DR. MARTIN E. REHFUSS, Philadelphia: We know the roentgen ray gives a so-called cast of the interior, and absolutely nothing regarding the chemical functions of the bowel, stomach or any of the organs. Today we are in a position in which we need methods of precision. One of the matters recently investigated was the question as to what actually exists chemically in the bowel and the method of obtaining samples for analysis. Diagnosis is based on the examination of a test meal, the roentgen ray and physical examination. By suitable apparatus it is possible to remove material from different parts of the bowel and demonstrate the changes in the bowel itself. We know the cecum is rich in bacterial mediums. The observations on this are too numerous to mention. This has been borne out in examinations of a number of Lane's cases seen in Paris and in this country. None of Mr. Lane's patients are in perfect condition for any length of time. The curious thing is that the material removed from different sections of the bowel is different. I do not know the explanation of this phenomenon, but as one continues to irrigate the bowel one can demonstrate unquestionably the difference in the intestinal liquid. One can fill up the colon with liquid and cannot outline the dulness because almost invariably there is air in the bowel. Therefore, that method must give way to the method of palpation which differs with the degree of retention in each individual case. As the bowel is emptied the material will change and get lighter in color, and suddenly there may be found a large amount of putrid material, darker in color. Then again, for a half hour one may obtain nothing. We have used this procedure in several hundreds of cases but are not yet prepared to say what method is best for examining the specimens after removal. We simply examine the specimens from different levels microscopically. Although a half hour's irrigation frequently gives nothing, we then get material which may contain cellulose, leaving no doubt in our minds whatever, as to the fact that material is from high in the bowel; then we get another type of material. We use on an average from 6 to 8 gallons of liquid, and never introduce the rectal tube beyond 4 inches in the bowel, because further introduction is difficult. All the cases have been proctoscoped. Most of the problem remains to be solved, and until we do this we cannot possibly realize what autointoxication means.

DR. W. L. CHAPMAN, Providence, R. I.: We have been talking about autointoxication and have been told a number of times that there is no such thing. The painstaking labors of many clinicians and chemists have either been forgotten or discounted. Not once have natural methods of cure been mentioned. There are many cases of hard-working, sedentary people who have to be careful in their diet, but let them browse around on a farm for a few weeks, live out of doors, swim, play tennis, or work in a garden, and they can eat all sorts of indigestible things and "get away with it." Take the poor dyspeptic shop girl and give her two or three weeks in the country and see how her digestion improves!

We see many cases in which the abdomen sags, and by simply exercising the abdominal muscles the abdominal tone is restored and the first thing one knows the bowels will act without any medicine at all. Physical therapeutics will do much.

Every patient who comes to the gastro-enterologist should have a complete physical examination beginning with the teeth. The nose and throat men take out the tonsils because they are carriers of infection, leaving decaying teeth which should be removed at that time. If not competent to extract teeth, a dentist should be in attendance, thereby saving the patient the trouble of another anesthetization, which in children is difficult to obtain. Again, it is not beneath the dignity of a surgeon to clean up the mouth after an abdominal operation, or have it done.

Every patient should have a complete roentgenologic study of his entire gastro-intestinal tract. Until one has this one knows nothing about the orientation; whether the colon goes in a straight line or is soldered to the bladder by adhesions. If the patient is to be operated on all the important points should be recorded for the surgeon.

DR. MILTON J. LICHTY, Cleveland: Gastro-intestinal autointoxication, nervous headaches and the uric acid diathesis are things talked about in my office by my patients, who know practically as much about them as I do. If we could get rid of some of this talk it would save time and also help the patients. I really believe that what Dr. Bloodgood mentioned with regard to the relation of the internist, the gastro-enterologist, to the surgeon is the thing which is going to help us out. There is no doubt whatever in my mind that many of the cases of so-called neurasthenia or constipation years ago were nothing more or less than surgical conditions, and yet we find now that they are not. The teeth and tonsils have just been mentioned. In addition to the teeth and tonsils, we have Jackson's membrane, retrocecal appendix and surgical conditions of the rectum, as well as the surgical appendix to account for symptoms. I want to remind you that the first attempt must not be considered as final. I have a record of three patients who said their appendixes had been removed, but the constipation persisted, and on a second operation the appendix was found there still making trouble.

DR. THOMAS CHARLES MARTIN, Washington, D. C.: I wish to call attention to three mechanical factors: the proctoscope, the patient in the knee-chest posture, and the rectum. The rectal valve is a factor in the production of organic obstipation. The hypertrophied valve becomes obstructed to a further degree, rectitis resulting, with infiltration; fixation results, establishing annular stricture, further contraction, and then the establishment of a tubular stricture of the rectum, the foundation being a normal stricture of the rectal valve resulting in symptoms of obstipation. We have the same form with a congenital condition.

Another form of obstruction is that due to angulation of the sigmoid flexure on the rectum. The proctoscope would indicate the obstruction within the rectum. The roentgenogram will only show such a condition as this when the picture is stereoscopic. We must be able to get the third dimension—the depth—shown by the use of the stereoscopic method of taking roentgenograms. One point already made must be emphasized: the importance of training the muscles on the front of the abdomen.

DR. J. A. RUBEN, Pittsburgh: In considering the part the colon plays in this question, let us for a moment examine the anatomic position this section of the alimentary canal occupies in the abdominal cavity as revealed to us by the

fluoroscope. As Dr. Chapman has said, it is only by the aid of the roentgen ray that we can accurately study these parts. The following may be found:

1. A normal condition; that is, ascending colon to liver, transverse colon above umbilicus to spleen, and descending to the sigmoid. In chronic constipated cases this condition is rarely found.

2. Prolapse of the ascending colon over the cecum. The transverse colon, starting from the pelvis, passes up to the spleen and turns a sharp angle to form the beginning of the descending colon.

3. Complete prolapse of the transverse colon, which lies on the pelvic floor with the hepatic and splenic flexures at about the level of the anterior superior iliac spines. Between these extremes there are innumerable variations.

The next question anatomically is whether this colon in its abnormal position is freely movable and can be pushed into normal position or is adherent. A movable colon may functionate fairly well even when in an abnormal position, but I have not as yet found an abnormally placed colon bound down by adhesions that was able to do so.

DR. G. REESE SATTERLEE, New York: There are five points which I wish to bring up—three old and two new ones. First, the education of the patient is an important thing. Patients now find that their cases have been wrongly diagnosed as neurologic when they are really intestinal. In fact, these patients are able to make a better diagnosis than some of the physicians, and send their friends to the gastro-enterologist.

The second point is that intestinal toxemia can be made more simple if classified into putrefactive cases, absorption of amins and diseased conditions of the colon.

Third, familiarity with the roentgen ray, not the technical side necessarily, but with the reading of the plates and with the fluoroscope, ought to be a part of the training of every internist and gastro-enterologist.

Fourth, a chemical blood examination is necessary in any patient on a diet, and carbohydrates should not be given to patients who have a high blood sugar.

Finally, I find that autogenous forms of vaccines are most efficient, and employing them often relieves us from the trouble of using massage and other measures, and in addition affords a chance to study the patient's anaphylaxis. It is essential to obtain the feces for culture after catharsis in order to get cultures from the cecocolon. I have secured satisfactory results in this way.

Trained Nurses in France.—It is not so many years since European physicians publishing their "Impressions of America," in their home medical journal always paid amazed tribute, if not in the first paragraph, at least on the first page, to the "American trained nurse." In France, the quarters appropriated to the nurses in the tradition-bound hospitals were not such as to invite the gentlewoman class to take up nursing as a profession. All this has now been done away with, and even before the war excellent training schools for nurses were well under way. The Assistance Publique, the centralized organization of all the charity hospitals and asylums in the Paris district, has now a fine new building as the training school for nurses to serve in the institutions caring for the sick poor. This new building is located in the maze which forms the great Salpêtrière hospital, founded in 1656 as an asylum for beggars. The new training school was inaugurated in 1907 and gives a three year course. The graduates pledge themselves to serve for three years in some of the institutions in charge of the Assistance Publique, after which they are free to take up private nursing. But those that remain with the Assistance Publique are entitled to a retiring pension. Before this hospital was founded, however, a training school for nurses recruited from the ranks of gentlewomen was founded, practically at her own expense, by Mme. A. Fould, in 1905. This school is said to be a model, and attractive in every respect. It gives a two year course, and the nurses pay about $20 a month during the first year. Other well equipped and well managed schools were founded about the same time by Miss Chaptal and others. One is now affiliated with the new Edith Cavell hospital school.

Clinical Notes, Suggestions, and New Instruments

ROENTGEN PLATE ILLUMINATOR, GIVING A PERSPECTIVE VIEW

J. J. SINGER, M.D., ST. LOUIS
Instructor in Clinical Medicine, Washington University Medical School

A roentgen-ray machine is no better than its plate when viewed in an illuminator; consequently, the better the illuminator, the better the value of the roentgen-ray machine.

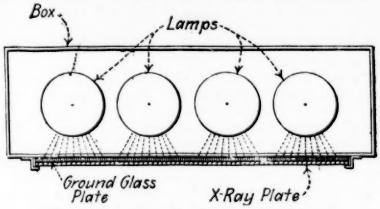

Fig. 1.—Top view of ordinary illuminating box.

Figure 1 is the top view of the ordinary illuminating box, with the lights directly back of a ground glass plate. This plate then becomes a source of light, emitting light rays of equal intensity through the roentgen plate. It will be necessary here to call attention to the fact that a roentgen plate

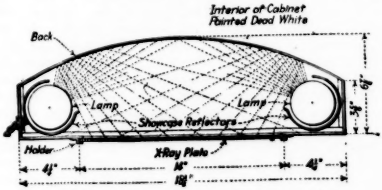

Fig. 2.—Top view of box described by the author.

represents in black and white the obstruction to the roentgen rays as they penetrate the body; therefore, the plate represents an uneven distribution of rays caused by the varying densities through which the roentgen rays must travel; in other words, the plate has been produced by uneven light.

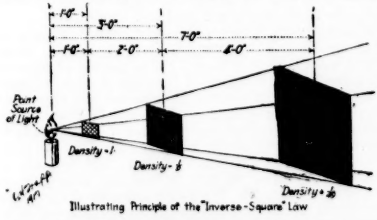

Fig. 3.—The principle of the "inverse square law."

Figure 2 is the top view of my box, in which a light is hidden on each side, the rays being reflected from a curved back, as indicated. It will be noticed that there is no ground glass plate to distribute the light evenly, the rays penetrating the plate according to the strength of the individual rays.

The center of the roentgen plate is lit up by rays of considerable length and consequently of weaker strength, and owing to this fact a weak illumination is produced in the center of the plate, which accounts for the perspective view.

In Figure 2 are given exactly dimensions best suited to my illuminator.

Figure 3 illustrates the principle of the "inverse square law." One can readily see from this drawing that the penetrating power of the light wave becomes rapidly weakened, that is, inversely as the square of the distance from the source.

Figure 4 gives a perspective view of the box, which is made of sheet tin, iron or steel, with a curved back.

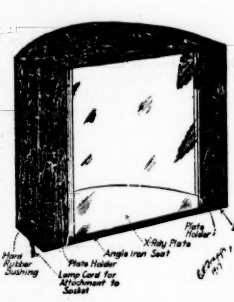

Fig. 4.—Perspective view of the box.

Fig. 5.—Adapter for smaller plates.

Figure 5 shows an adapter for smaller plates, the outside dimensions of the adapter being 14 by 17 inches. The inside opening can be made for any size plate desired.

The box is being used with satisfaction at the tuberculosis clinic in Washington University Medical School.

While there are other boxes being used that have indirect lighting, I do not know of any box in use that resembles the one I have described.

CONCLUSIONS

1. The box is simple, portable, light and cheap. Any mechanic is able to construct one.

2. The perspective effect of this box depends on a proper interpretation of the physics of light waves.

3. A roentgen plate should be unevenly illuminated, just as the plate was originally produced by an uneven light.

Carleton Building.

DEVICE FOR ROENTGENOGRAPHIC LOCATION OF BULLETS AND OTHER FOREIGN BODIES IN WOUNDS

SINCLAIR TOUSEY, A.M., M.D., NEW YORK

Localization by means of roentgenography presents no difficulty in the case of a finger. Here there are distinct landmarks, and it is easy to take two pictures in planes at a right angle to each other. If we employ a ray vertical to the plate at the supposed position of the foreign body, the latter is so near the plate that no correction is required for the slight lateral displacement of its shadow if not exactly at the spot where the ray is normal. In many other situations, however, two pictures at a right angle are either impracticable or inadequate, owing to the thickness of the part, the absence of very accurate bony landmarks, and often the great distance of the foreign body from the surface. The exact depth at which the foreign body is located is the difficult problem.

The methods of localization now in use fall into two groups: (1) the McKenzie-Davidson type, and (2) a method to which no distinctive name is attached. My new device is a modification of the latter type.

DETAILS OF METHOD

Apparatus Required.—1. A piece of galvanized iron netting measuring 8 by 10 inches, with meshes one-eighth inch square, the wire being of such a thickness that there are seven meshes to the linear inch. 2. A single distinctive lead marker like a small ring. 3. A set of lead numbers. 4. Facilities for moving the roentgen tube laterally a measured distance after the first exposure. 5. A stereoscopic plate holder for the exceptional cases in which two exposures should be made on separate plates.

Manipulation.—The distinctive lead marker is fastened to the skin at a point where it will be in contact with the center of the plate during the exposure. The position of this marker is indicated on the skin with an indelible pencil. The plate, covered by the wire netting, is laid on the table. The lead serial number is invariably placed over the lower external corner of the plate. The same number should be marked on the skin with an indelible pencil. Lead markers R and L (right and left) will be of occasional service. For the thigh or any part of the head or trunk, the anticathode is placed at a distance of 21 inches from the plate; it is displaced laterally 3 inches after the first exposure. For the forearm or leg the distance from the anticathode to the plate is 14 inches and the lateral displacement 2 inches. Each subdivision of the wire mesh (one-seventh inch) that the image of the foreign body is displaced corresponds to one-half inch distance from the plate to the foreign body when the exposures were made. If this distance is considerable, one must bear in mind the fact that the foreign body is located in a direction from one image to the corresponding position of the anticathode, not necessarily in a direction vertical to the plate. Each exposure should be of the same intensity and duration as for a single picture whether the exposures are made on the same or on separate plates.

The advantage of this method lies in the small space required for the apparatus and in the absence of any mathematical calculation.

850 Seventh Avenue.

AN ELECTRICALLY HEATED CONSTANT TEMPERATURE WATER-BATH FOR SEROLOGIC WORK*

OSCAR T. SCHULTZ, M.D., CHICAGO

For serologic work a constant temperature water-bath is a necessity, and a bath heated and controlled by electricity has manifest advantages over any other kind. While there are several electric water-baths on the market, they are not entirely satisfactory, either because the size is excessive in comparison with the available working space, or because the regulating and heating attachments are cumbersome and in the way. A bath made according to our specifications appears to overcome these objections. Modifications as to size, but which will still retain the more important features of the bath, may suggest themselves.

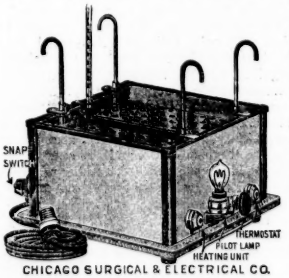

Fig. 1.—Water-bath with two test tube racks.

The bath illustrated in Figure 1 was designed to carry two metal test tube racks, each measuring 8¾ by 4 inches and 2¾ inches in height, and each with a capacity of forty-eight tubes of the 3 by ⅝ inch size, as shown in Figure 2. These racks are suspended by adjustable supports from the sides of the bath in such a way that the tubes can be submerged to any desired depth. To overcome the waste of space which is one of the features of a circular bath, this bath is made square in shape, the inside dimensions being 9 by 9 inches and 5 inches in depth. The bath is made of No. 19 sheet

* From the Nelson Morris Memorial Institute for Medical Research of the Michael Reese Hospital.

copper, the inner surface of which is tinned. Outside of this is a layer of hair encased in building paper, and this in turn is covered by transite (a mixture of asbestos and Portland cement) three-sixteenths inch thick. With this insulation there is no appreciable loss of heat from the sides or bottom of the bath. The total thickness of the wall is five-sixteenths inch.

The bath is heated by two replaceable units placed in copper tubes 1 inch in diameter at the bottom of the bath, the tubes being entirely surrounded by water. Regulation of the temperature is effected by a removable, pencil type, bimetallic thermostat, also placed in a copper tube one-half inch in diameter at the bottom of the bath between the heating units. The latter are so wound and connected that one half of each unit, controlled by a single snap switch, may be thrown out of the circuit as soon as the desired temperature is reached. The remaining half of each unit, which is entirely independent of that portion of the system for rapid heating, is controlled by the thermostat, and serves to maintain the uniform temperature desired.

Fig. 2.—Test tube rack.

The advantages of the bath described are neatness of appearance, compactness, and absence of bunglesome attachments.

A CASE OF GAS EMBOLISM

EDWARD VON ADELUNG, M.S., M.D., OAKLAND, CALIF.

A man, with advanced pulmonary tuberculosis of the lungs, and extensive pleuritic adhesions, was given nitrogen injections in an attempt to induce pneumothorax.

The treatment was begun at 3:15. The manometer failed to register oscillations so necessary for safety. This fact, however, was unfortunately disregarded, and from 15 to 20 c.c. of gas were allowed to flow slowly into the left thorax. In two or three minutes the patient complained of "cramp" in the right leg. He was turned over, on the supposition that the "cramp" was due to position, strain or compression. The operator's attention was then distracted for a moment, and when he again looked at the patient he noticed that the head rotated to the right, that the right arm and leg were paralyzed, and that the patient was unconscious. The eyes were turned to the right, the skin was pale, and the veins stood out prominently over the right shoulder and arm. Gas embolism was immediately recognized, and the following treatment was begun, after discontinuance of the nitrogen inflation:

A hypodermic or camphorated oil (0.2 gm. of camphor) and a hypodermic of 2 c.c. of whisky were given. Then 10 c.c. of blood were withdrawn by syringe from the right arm. Hot wet cloths were applied to the head, chest and abdomen.

The pulse was small, the blood pressure 100, and the respiration and pulse regular. There was slight cyanosis of the ears and fingers. The knee tendon reflex was active. Presently the eyes began to roll. The pupils were moderately dilated.

After forty minutes the patient was able to move his right leg and arm, and he gradually improved. In forty minutes after the onset he was able to answer questions, but he was still dazed. He did not complain of pain. Fifty minutes after the onset, he was much improved, regaining control of the right arm. At 4:10 he was smiling and laughing, but was not feeling natural, and he had slight numbness in his right arm.

The patient was put in a hospital bed for observation, and the next morning the numbness had disappeared. As he felt quite well, he went home.

This case is placed on record to illustrate the need of guidance by the manometer in the induction of pneumothorax. As the notes were dictated during the time of the accident, they are accurate as far as they go.

1206 Broadway.

Military Medicine and Surgery

THE MILITARY ORTHOPEDIC RECONSTRUCTION HOSPITAL

LEO MAYER,* A.M., M.D.
NEW YORK

In England, under the direction of Sir Robert Jones, and in Canada, through the Hospitals Commission, organized effort is being made to reclaim the crippled soldier. In Germany, a similar movement was initiated by Professor Biesalski, secretary of the Organization for the Care of Cripples and of the Orthopedists' Association. In France, a layman, the mayor of Lyons, Monsieur Herriot, laid the foundation by establishing a school for crippled soldiers. In each of the belligerent countries, the necessity for intelligent care of those crippled by the war has been appreciated, and means, more or less adequate, have been found to meet it.

I wish to emphasize the importance of what is called the orthopedic reconstruction hospital. Of the soldiers unfit for further military service—the blind, those suffering from internal diseases, the psychopathic and the crippled—the first three groups can be cared for by an extension of the existing hospitals and institutions. For the crippled soldier, however, no institution exists that can properly care for his particular need, since he not merely requires medical treatment, but must frequently be equipped with an artificial leg or a brace, instructed in its use, and shown how to earn his livelihood despite the physical disadvantage under which he labors.

The injuries which tend to cripple may be divided into six classes:

1. Amputations, of which we can unfortunately expect a large number since, despite modern conservatism in surgery, the high explosives used in the present war, all too frequently produce a type of wound that necessitates sacrifice of the limb.

2. Bone injuries, malunited and ununited fractures, and cases of chronic osteomyelitis due to sequestrums or foreign bodies embedded in the bone.

3. Joint lesions. These may be contractures, due to long continued immobilization or to injury in the neighborhood of the joint, bony ankyloses, due to extensive obstruction of the joint, or painful joints due to inequality of the articular surfaces, foreign bodies or to disease.

4. Nerve injuries, either complete division of the nerve, or embedding in scar tissue.

5. Division of the tendons.

6. Static deformities of all types.

Characteristic of these six groups is the lengthy postoperative treatment required in almost all instances. For instance, to discharge a patient with a musculospiral paralysis from a hospital immediately after the operative wound has healed is to leave the task half finished. The patient must be given effective after-treatment—massage, electricity, and the proper splint—if the operation is to result in a return of function. Or take the case of a patient whose flexor tendons in the palm have been divided by a bullet. The operation is almost certain to be a failure if adequate postoperative exercises are not carried out under the eyes of a

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competent physician. Even those who have suffered amputation are not ready for an artificial limb immediately after the wound has healed, but the stump must be hardened and must reach a constant form before the proper prosthesis can be applied. Learning to use the artificial limb also requires time, since, particularly in the case of an artificial hand, its use is a fine art. To give a patient an artificial hand, with instructions to go ahead and use it, is like presenting a man with a violin and telling him to go ahead and play it.

Thus from the very nature of the injuries, the orthopedic reconstruction hospital has to include departments which in times of peace are not thought of in connection with medical institutions. The operating room and the ward must be supplemented by the workshop, the agricultural school and the business college. The vocational department serves numerous important purposes. In the first place, it affords the most rational and effective means of exercising joints and muscles, stiffened and weakened by long continued disuse. The Zander exercises, which have hitherto been in vogue, are exceedingly irksome for the patient and uninteresting to the physician. To the soldier, naturally depressed by a long drawn out recovery from a severe wound, the therapy should not only be directed toward physical recuperation, but should also give a psychic stimulus. Few things appeal to a man more than manual work in the carpenter shop or in the smithy, and the interest in the product of his labor will frequently enable him to perform movements that would otherwise be impossible. Thus, for instance, I recall in particular the case of a 6-foot petty officer whose right shoulder had been stiffened by an extensive periarticular gunshot wound. After the wound had healed, he was exceedingly depressed because he maintained he could no longer continue at his trade. After three weeks in the carpenter shop, under careful medical supervision, beginning with light work, such as varnishing and gradually progressing to the heavier —hammering, sawing, etc.—he had regained at least 75 per cent. of the normal movement of the shoulder and, still better, his psychic condition had become normal. He was now convinced that he could remain a carpenter.

In other instances the workshops are particularly important in training those who have undergone amputation. The first reaction of a man who has lost a limb is the sensation of hopeless crippledom. He is usually convinced that he will have to retire and live on his pension or at best eke out a living by a porter's or janitor's job. My experience, however, has been that practically every such patient can continue in his own vocation or in one allied to it. Amputation of the hand does not prevent a man from continuing to be a carpenter, smith, brace-maker, bookbinder or farmer, since with practice the lower arm stump acquires sufficient dexterity to replace the amputated hand. In the crippled children's hospital, with which I was associated, we had a 16-year-old apprentice who, despite amputation of the right hand, had become an expert brace-maker. This lad acted as instructor to soldiers with a similar type of amputation, and within two months taught them to work with a skill and enthusiasm equal to his own. When the amputation has occurred above the elbow, the problem is much more difficult. Here recourse must be had to an artificial limb. Many men can, with the aid of a suitable prosthesis, such, for instance, as the Siemens-Schukert arm, continue at the previous occupation. If the amputation has occurred near the shoulder, or if the arm has been disarticulated, it is, however, extremely difficult to handle the usual tools of carpenter, smith or cobbler. Then the patient must be trained in an allied branch. The carpenter, for instance, may become a foreman or he can learn to be a piano polisher, since in this trade practically all the work is done with a sweeping motion of one arm. Those who have suffered amputation of a leg require comparatively short training before they realize their fitness to continue in their old occupation. For them a few ingenious devices, such as the cobbler's bench with mechanical device to hold the shoe in place with a strap, are of great advantage. To all patients who have been equipped with artificial limb or with brace, the workshop affords ample opportunity to test the efficiency of the apparatus.

To the hospital the workshops are a distinct economy and a convenience. No need for plumbers, glaziers, bookbinders, printers or carpenters, when all this work can be done in the shops conducted by the hospital itself. Particularly advantageous is the brace-maker's shop. Even in times of peace the number of expert brace-makers hardly suffices for the need of the orthopedist. In times of war, when the number of maimed multiplies with tremendous rapidity and when the number of brace-makers diminishes because of conscription, it is practically impossible to supply the needs of crippled soldiers unless adequate provision is made for training men in this complicated handicraft. With two or three skilled men in charge of the shop, the soldiers with a mechanical turn can be taught one branch of the craft, and those with experience in leather work—saddlers and cobblers—can be taught another, so that in time skilled workers can be supplied.

As a necessary adjunct to the vocational department is the employment bureau. It is manifestly unfair to discharge a crippled man who has risked his life in the service of his country without helping him to secure a position of maximum advantage to himself and to the community in whose service he has been crippled. Here is opportunity for the hospital to cooperate with the state employment agencies.

It is distinctly advantageous to include the vocational department in the hospital instead of establishing separate institutions for it. Time is gained, the method is more economical and, above all, vocational work can be begun at the psychologic moment. The treatment of gunshot wounds of the extremities involves in almost all cases a lengthy after-treatment. During this time, while the patient is under medical supervision, vocational work should be begun. The physician, to whom the patient naturally looks as guide because he, far more than any other, has the patient's confidence, helps overcome the inertia which the crippled are almost certain to feel. Having workshop and hospital ward in the same institution helps build up an *esprit de corps* which it is difficult to secure in any other way. Of course, a necessary condition to the success of such a hospital is the character of the medical director. He must not only be a well trained orthopedic surgeon, but he must have a social conscience and be interested in the individual needs of each one of his patients.

The vocational work should include not only shops but also courses in farming and dairying, business courses, culture courses, training for civil service examination, etc. For every man, no matter what his previous calling has been, the hospital should offer

some means of instruction that will enable him, despite the physical disadvantage he has suffered, to leave the hospital a more productive member of the community than at the time of his enlistment.

It would be unwise and unjust to leave work of such importance to local control or to private initiative. The national government itself in its war program must include not only the equipment of its armies and its hospitals for treating wounds in the acute stage, but also the adequate medical, vocational and social care of the crippled soldier. Under the direction of Major E. G. Brackett, this work has already been begun. The movement deserves the hearty support both of the medical profession and of the entire community.

41 West Eighty-Third Street.

DIGITALIS THERAPY AND THE PRESENT SHORTAGE IN DRUGS

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The following brief review of the present status of the materia medica of the digitalis group and its relation to therapeutics has been prepared at the request of Prof. Julius Stieglitz, chairman of a committee on synthetic drugs, appointed by the National Research Council, because of the present want of many preparations of this group that have come into more or less widespread use.

All of the members of this group, including many crude drugs and their galenic preparations, as well as glucosidal active principles, exert a qualitatively similar therapeutic action on the heart when they are brought into the blood stream; but the various members of the group vary enormously in their activity and in the rate of their absorption from the alimentary tract.

These differences in behavior of the different members of the group have resulted in the development of faith in one or the other of the numerous preparations and specialties, and a corresponding distrust of all others on the part of those physicians who have not appreciated the importance of dosage and the several methods of administration best suited to the individual preparation in securing the results aimed at. Those who are thus left without the preparation to which they are accustomed feel the want keenly, and the present discussion is designed to point the way to relief from these conditions.

Digitalis, digitoxin, strophanthus, strophanthin and ouabain exert the same kind of action on the heart directly, and on the circulation indirectly, as previously stated in different words; but the action of digitalis and its most active principle, digitoxin, is far more lasting than that of the others. It is necessary to caution the reader against confusing "actions" and "effects" in this connection.

When an attack of acute cardiac dilatation is relieved by any member of the group whatsoever, the effect is permanent, provided the cause of the failure is not continuously active; but in various forms of chronic cardiac disease which require more or less continuous digitalis medication, the duration of effect and the duration of action are nearly the same. In such cases the duration of action and effect of digitalis and digitoxin are far greater than those of the other members of the group, in which case the difference is overcome by increased frequency of dosage, or, what amounts to the same thing, a relatively—not actually—larger dose of equal frequency.

Digipuratum is one of those specialties that have come into wide use partly through their intrinsic value, but mainly because of a most persistent and effective campaign of adroit advertising, and it may be taken as an example of the specialties on which all too many clinicians have come to fix their sole reliance in digitalis therapy. It is certainly true, however, that while digipuratum, like many other specialties, exerts a satisfactory cardiac action, it is in no way essential, since exactly the same actions can be induced by official members of the group in the hands of any one who masters the really simple technic of administration.

In all cases requiring digitalis therapy, digitalis itself in the form of the powder, the tincture, fluidextract, extract or infusion may be used orally with the sole exception of those relatively rare cases in which immediate relief is imperative, and which require intravenous or intramuscular administration. In such cases the typical digitalis action can be induced immediately by the intramuscular or intravenous injection of strophanthin or crystalline ouabain (so-called crystalline strophanthin, not true crystalline Kombé strophanthin, which is not commercially available).

It is necessary to call attention again to the difference between an immediate action and immediate effect, because it has long been taught, without a particle of real evidence, that the action of digitalis cannot be induced promptly. The whole range of digitalis action up to the maximum, that is, cardiac stoppage, can be induced within from five to fifteen seconds by the intravenous injection of digitalis tincture, deprived of its alcohol, or digitoxin. This simple experiment disposes forever of the mischievous claim that digitalis action is slow. The *effect* of therapeutic doses is *gradually* induced; the *action* is *immediate*. A bullet fired through the heart *acts* instantaneously; the *effect* is a fatal hemorrhage, the rapidity of which depends largely on the size of the wound. With suitable dosage, digitalis exerts its action in much less time than was formerly believed to be possible.

The action of an intravenous dose of strophanthin or ouabain is not so lasting as is that of a corresponding dose of digipuratum, but it lasts until it can be supplemented by the oral administration of digitalis.

Another fallacy that dies hard is that digitalis and digitoxin act on the vessels and cause high blood pressure, and that they are therefore contraindicated in cases in which the blood pressure is already high. This has been the greatest stumbling block in the way of the use of digitalis, next to that of regulation of dosage. Every one of the digitalis bodies acts on the vessels when enormous doses are passed directly into them, but this action is never induced by therapeutic doses. The contrary belief rests on the observation of the effects of massive doses in animal experimentation, and is not supported by any careful clinical observations or experiments with therapeutic doses.

Among the less important fallacies that have severally contributed to the distrust of digitalis and have been utilized by manufacturers to their own advantage, the following may be mentioned briefly: All drugs, preparations and active principles of this group without exception cause nausea and vomiting in overdoses through their action on the vomiting center in the medulla—not through any direct action on the

stomach; hence it cannot be avoided by any mere change in the mode of administration, or mere choice of preparation, but only by proper regulation of the dosage—and by dosage I mean the amount which actually enters the blood stream and which alone can act on the heart.

None of the drugs of this group are actively diuretic through any direct action on the kidneys. They induce diuresis solely through an improved circulation. That does not mean either a higher or a lower blood pressure in every case; it means a more effective circulation, one better adapted to the needs of the individual patient. This sometimes means an increase, sometimes a decrease, in pressure.

All digitalis galenicals, tincture, infusion, extract and fluidextract, exert the same kind of action, because they all contain all of the active principles of the drug.

All digitalis bodies without exception have the disadvantage of being absorbed somewhat slowly and irregularly from the alimentary tract. Digitalis tincture, as well as the infusion and fluidextract, are absorbed *fairly* promptly; strophanthus and strophanthin, ouabain, convallaria preparations, apocynum preparations, and wahoo are absorbed very irregularly. This is of prime importance, because it requires the administration of large doses of these drugs in order to insure the therapeutic effects; but rapid absorption occurs occasionally under conditions that are not understood, and severe, or even fatal, poisoning may result. The latter drugs should never be used for oral administration.

There is no difficulty in getting standardized digitalis preparations, and these do not deteriorate rapidly. Slight deterioration is not important, because the drug must always be given until a definite action is induced, and this varies with every patient; since there is no fixed dose that is applicable to different patients.

Tincture of digitalis contains only traces of fat, and that is no more disturbing to the stomach than an equal amount of other fixed oils or fats.

Granted that a correct diagnosis has been made, digitalis therapy becomes largely a matter of correct dosage, including the proper method of administration, which is nearly always oral. It is beyond the scope of this paper to consider dosage and methods of administration in detail, the present purpose being to point out to the clinician the resources that he has at his command; but he will find valuable suggestions in the following papers:

"A Clinical Study of Crystalline Strophanthin," by Harold C. Bailey.[1] In this paper the author reports most careful clinical observations with crystalline ouabain, formerly called crystalline strophanthin.

"The Toxic Actions of Digitalis on the Heart," by the same author.[2] This is an excellent study of the toxic actions of digitalis that frequently escape attention.

"Digitalis Dosage," by Cary Eggleston.[3] This is perhaps the best recent study of the method of administering digitalis whereby prompt effects are induced after oral administration.

Fraenkel and others have published numerous papers dealing with the intravenous administration of strophanthin.

I am well aware that many readers will be inclined to deny many statements made in this brief article, but I can only assert that they are based on careful clinical and experimental observations and are not contradicted by any recent careful studies.

[This report was submitted in manuscript to Dr. Joseph L. Miller, Major, M. R. C., U. S. Army, Camp Dodge, Iowa, and Dr. Miller writes: "I agree fully with all the statements made by Dr. Hatcher. He has expressed exactly my views on this subject."

Dr. Richard Weil, New York, writes: "I have not only been familiar for some years with the work done in Dr. Hatcher's laboratory on the digitalis drugs, but have made practical application of much of it in my service in Mount Sinai Hospital with gratifying results. I can therefore express myself as in full agreement with the suggestions made in the present paper."—ED.]

1. Jour. Pharmacol. and Exper. Therap., 1909, **1**, 359.
2. Am. Jour. Med. Sc., 1911, p. 1.
3. Arch. Int. Med., July, 1915, p. 1.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

PARAFFIN FOR FILMS (SURGICAL PARAFFIN, PLASTIC PARAFFIN)

Paraffin intended for application to burns, etc., should be solid at body temperature, but be more ductile and pliable than the official paraffin (Paraffinum, U. S. P.) and be liquid at or below 50 C. A thin film when prepared and tested as described below should be pliable at or below 28 C. and ductile at or below 31 C. At body temperature (38 C.) it should be pliable, and adhere to, but permitting ready detachment from the skin.

Actions and Uses.—Paraffin for films acts mechanically. When applied to burns and denuded surfaces, it provides an air-excluding dressing which relieves pain, forming a soft, pliable splint-like covering to the wounded surfaces, keeps the parts at a relatively uniform temperature, immobilizes the epidermal tissue, and may aid in the formation of new tissue by acting as a scaffolding for newly formed cells.

Paraffin for films is used mainly in the treatment of burns. It is said to be useful in the treatment of "frostbite," "chilblains," and for covering denuded surfaces. It is also employed to prepare "paraffin-covered bandages" and to seal gauze dressings.

Dosage.—In the paraffin treatment of burns the wound, after preparatory treatment, is dried and a thin coating of either liquid petrolatum or melted paraffin for films (at a temperature of about 53 C.) is applied by means of an atomizer or brush. This is followed by the application of a thin layer of cotton and then another layer of the melted paraffin; the dressing is finished by covering with cotton and bandaging.

The melting point of paraffin for films is determined by the method of the U. S. Pharmacopoeia, IX, p. 596.

The pliability and ductility of paraffin is determined as follows: A little of the melted substance is poured on water having a temperature of about 40 C. so as to form a number of separate films. The temperature of the bath is then gradually lowered by the addition of cold water to determine the pliability and ductility. (Pliability test). The film while immersed in water is doubled on itself and the temperature of the water observed at which the film breaks sharply on *one* fold. (Ductility test.) The film is stretched while under water and the temperature of the water noted at which the film breaks sharply and evenly.

A small surface of the forearm is painted with melted paraffin, covered with a thin layer of cotton, another coat of paraffin painted on the cotton, and then dressed with cotton and bandage. After one hour, the film should remain attached to the skin, showing it is adherent, but be easily removable.

STANOLIND SURGICAL WAX—A brand of paraffin for films, melting at 47 C., being pliable at or below 25 C. and ductile at or below 29 C.

Actions, Uses and Dosage.—See under general article on Paraffin for Films.

Manufactured by the Standard Oil Company of Indiana, Chicago.

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SATURDAY, NOVEMBER 3, 1917

VITAMINS AND TUMOR GROWTH

Tumors in general and cancers in particular are tissues growing under special conditions. A comparison between the laws determining tumor and tissue growth will determine our knowledge of the physiology of tumors as well as of tissues. There exist similarities and analogies in the behavior of both, and there are differences either real or due to a gap in our knowledge. The differences will suggest new problems. These were the statements made by Leo Loeb of St. Louis at a symposium on cancer before the Section of Experimental Medicine of the American Association for the Advancement of Science in New York, last December.[1] It has come to be recognized in recent years that normal growth is dependent on a number of nutritive factors, the importance of which is only beginning to be understood. Thus for the purpose of growth a diet may be deficient with respect to both the quantity and the quality of its protein, to its inorganic salts, or to its total calorific content; but beside an adequate quota of these components, there is recognized the necessity of certain as yet unidentified substances now popularly known as vitamins.

So far as known at present, the vitamins which are essential to growth, and without which life cannot even be maintained over a reasonably long period, are furnished to the organism with the diet. They do not seem to be produced de novo in the animal body. Benedict and Rahe[2] have accordingly investigated the question whether tumor cells, like somatic cells, are dependent on a supply of vitamins from outside sources, or whether tumor cells possess a power of synthesis of vitamins. If the latter supposition should be correct, then, the investigators state, we should have a fundamental difference between tumor and body cells, a difference as great in this respect as between plant and animal cells. The former of these synthesize vitamins; the latter have never been shown to do so. If tumor cells possess the power of vitamin synthesis, then they have indeed a unique and tremendous advantage over ordinary tissue cells.

Obviously, as Benedict and Rahe further remark, this question is an important one worthy of detailed study. The relation of diet to the growth of tumors has frequently been investigated in the past. The novelty in these new researches consisted in comparing the growth of the same strain of tumor in experimental animals, in the diet of which, in one group, no more vitamin was supplied than was necessary barely to maintain the animals without growth, whereas, in the other group, the ration was sufficiently rich in vitamin to facilitate liberal growth. The authors argue that, if on the diet deficient in vitamins the animal plus the tumor increases in weight, approximately in accordance with the weight of the tumor, it is obvious that the latter tissue is independent of an outside source of vitamin so far as its growth is concerned, since a quantity of vitamins is supplied in the food that will suffice for the maintenance only of the animal's original tissues. If, on the contrary, the tumor grows, but the total weight of the animal plus the tumor remains unaltered, then we are justified in concluding that the tumor is dependent on vitamin from outside sources, and that, through increased avidity, it is able to appropriate the vitamins of the host's tissues to its own uses, so that a given quantity of the host's tissue is practically transformed into tumor tissue. In this event there would be no appreciable change in weight in the animal, though the tumor might conceivably grow to a considerable size before the death of the host. Another possibility would be that during the growth of the tumor, the weight of the animal would increase more rapidly than could be accounted for by the growth of the tumor. In this instance we should have to assume that the tumor produced a growth-promoting substance that escaped into the circulation and affected the growth of the host.

The animals on both groups of diets—those comparatively deficient in vitamins as well as those richer in these substances—readily developed tumors after appropriate inoculations. But, on the vitamin-restricted diets, the total weight of the animals failed to exhibit any increase, despite the development of tumors equivalent to about one third of the total body weight. The very rapid growth of tumors under conditions that completely prevent the growth of body tissue indicates the remarkable avidity that tumor cells may show. Benedict and Rahe tentatively assume that tumors, like the somatic cells, are thus dependent on growth stimulants from outside sources, either from the food or from the tissues of the host. Their experiments show, furthermore, that even a very rapidly growing experimental neoplasm does not liberate into the circulation any substance that may act as a stimulant to body growth in the absence of growth-promoting vitamins in the diet.

1. Loeb, Leo: Tissue Growth and Tumor Growth, Jour. Cancer Research, 1917, **2**, 135.

2. Benedict, S. R., and Rahe, A. H.: Studies in the Influence of Various Factors in Nutrition on the Growth of Experimental Tumors, I, Jour. Cancer Research, 1917, **2**, 159.

THE HUNGRY INFANT

The problems of alimentation in infancy have been greatly delayed in their solution because of a lack of objective signs and accurately established facts on which rational procedure can be based. In the adult, the subjective symptoms can be consulted; and the progress in the expert analysis of the physiologic and chemical functions has reached a stage of considerable precision. Hunger and appetite, the responses of the digestive glands to various types of stimuli, the movements of the successive segments of the gastro-enteric tract, and other factors are now understood with considerable accuracy.

It requires little argument to indicate the difficulties that beset the student of the comparable questions in the case of the infant, in which the personal factor of cooperative intelligence is lacking and the technical hindrances to experimentation or instrumentation are obviously great. Yet certain items of information are plainly needed in the routine of infant feeding. It is important, for example, to have a defensible basis on which to determine the periods between the successive administration of food, or to know whether difficulties in nursing have an alimentary background, so to speak. Two years ago, Carlson and Ginsburg[1] made a noteworthy contribution to the analysis of the hunger sense in the new-born by actually demonstrating the hunger contractions of the stomach in these infants. It was thus shown that, as in adults, contractions of the empty stomach cause the hunger sensation, but occur with even greater intensity in infants. The "pangs of hunger" are associated with the rhythmic contractions of the stomach wall. As one writer has expressed it, impulses set up by these contractions and carried to the higher centers are, in the normal consciousness, recognized as hunger. These impulses produce secondary effects, such as restlessness and irritability. However, he adds, the prime factor in the desire for food depends not on the basis of distress due to the contractions of a hollow viscus, but on "the memory processes of past experience with palatable foods." This psychic factor is appetite, and its absolute distinction from the physical factor, hunger, must be kept in mind.

The studies of Carlson[2] and his co-workers have been corroborated in the Department of Pediatrics at the University of Minnesota by Taylor,[3] who has further shown that still greater hunger contractions occur in the stomachs of the prematurely born. In the adult, in general, the taste of salt, sour, bitter or sweet, or the chewing of agreeable, disagreeable or indifferent substances all produce temporary inhibition of the gastric contractions. The chewing of palatable foods by the adult when hungry causes an inhibition, made more lasting by the flow of appetite juice in the stomach. Local stimulation in the mouth is almost invariably inhibitory. Food in the stomach likewise stops the hunger contractions, this form of inhibition being less transitory than that from the mouth. Taylor[3] has now found that inhibition of the hunger contractions from the mouth does not occur in young infants. Inhibition of the hunger contractions from the mouth in older infants is present only as the result of stimuli that the babe has learned to associate with food. It does not occur with substances which produce equally strong sensory impressions but are not considered by the infant as food. Inhibition from the mouth is psychic in character. On the other hand, reflex inhibition from the presence of food in the stomach is present in infants of all ages, though it may be developed only partially in young infants.

There is a widespread belief that the crying infant is hungry. Taylor has expressed the view that hunger is not an immediate cause of crying in a normally developing breast-fed baby, so long as the periods between feedings are not unduly protracted. In his own words, neither the hunger contractions themselves nor the increased irritability due to them are ordinarily immediate factors in the production of crying. Young infants sleep throughout strong contraction periods. Older infants often do the same, and are frequently quiet even from twelve to sixteen hours after a feeding. Mental factors produce crying at a very early age. And the fact that crying ceases when food or water is administered may mean only that the infant's attention is diverted to the performance of a pleasurable act.

Some time ago, Ginsburg, Tumpowsky and Carlson[4] reported the average time between nursing and the appearance of hunger contractions to be two hours and forty minutes, with a minimum of two hours and twenty minutes, and a maximum of three hours and thirty minutes. Under like conditions, Taylor has observed that the average time required for the development of hunger in healthy infants gaining in weight and receiving a known sufficient amount of food is, in premature infants under 1 month, one hour and forty minutes, with a maximum of two hours and twenty minutes and a minimum of forty minutes; in full term infants under 2 weeks, two hours and fifty minutes, with a maximum of four hours and a minimum of two hours; and in infants from 2 weeks to 4 months, three hours and forty minutes, with a maximum of four hours and thirty-five minutes and a minimum of three hours and twelve minutes.

One might be inclined to utilize these data in determining the ideal interval that should elapse between

1. Carlson, A. J., and Ginsburg, H.: Contributions to the Physiology of the Stomach, XXIV, The Tonus and Hunger Contractions of the Stomach of the New-Born, Am. Jour. Physiol., 1915, **38**, 29.

2. Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, 1916. The Stomach in Hunger, editorial, THE JOURNAL A. M. A., Feb. 8, 1913, p. 448; The Gastric Movement in Hunger, Sept. 27, 1913, p. 1044; The Call of the Empty Stomach, Oct. 4, 1913, p. 1300; New Facts About Hunger, July 11, 1914, p. 169; Stomach Bitters, Jan. 2, 1915, p. 58.

3. Taylor, Rood: Hunger in the Infant, Am. Jour. Dis. Child., October, 1917, p. 233.

4. Ginsburg, H., Tumpowsky, I., and Carlson, A. J.: The Onset of Hunger in Infants after Feeding, THE JOURNAL A. M. A., May 29, 1915, p. 1822.

feedings. It appears, however, that it is only in normal babies, receiving well tolerated food in sufficient quantity, that the development of hunger waits on the emptying of the stomach. In the case of infants with chronic disturbances of alimentation, hunger contractions may occur long before the stomach is emptied. Consequently, Taylor remarks, their presence is not in itself an indication that the stomach is ready for food. Another current view that has been upset by further observations of Taylor[5] concerns the response of the secretory apparatus of the stomach to the process of feeding. Contrary to what has been found in adults, there is no appetite or psychic secretion of gastric juice in the young infant.

THE VITAL CAPACITY OF THE LUNGS—ITS SIGNIFICANCE IN DISEASE

The vital capacity of the lungs is the expression applied to the volume of air that can be expired after the deepest possible inspiration. Among the factors affecting the vital capacity are the age, sex, height, weight, the size and flexibility of the thorax, and the state of physical training of the individual. Recent measurements made at the medical clinic of the Peter Bent Brigham Hospital in Boston furnish the following standards for the vital capacity of the lungs of normal men: for men over 6 feet tall, 5,100 c.c.; between 5 feet 8½ inches and 6 feet, 4,800 c.c.; between 5 feet 3 inches and 5 feet 8½ inches, 4,000 c.c. In women of the same heights it is about one fifth less. When compared with these standards, the vital capacity of healthy persons very rarely falls below 90 per cent. of the normal standard, although it may rise considerably above the normal. According to the Boston data, the most important factor inducing extreme variation in the vital capacity of normal subjects of similar size appears to be athletic training. The average vital capacity of ten highly trained athletes was 120 per cent. of the normal standards. The increase of vital capacity had persisted in some of them for several years after strenuous exercise had been last indulged in.

Although this feature of respiration has been measured in literally thousands of persons, the determination of its magnitude has found a limited application at best in relation to pathologic conditions. Peabody and Wentworth[6] at the Harvard Medical School have found, in a study of a variety of diseases, that the tendency to dyspnea corresponds closely to a decrease in the vital capacity of the lungs. This is not true of the anemias; and in diseases in which dyspnea is not a prominent symptom the vital capacity is usually within the normal limits, although general weakness and old age may cause a slight decrease. Patients with heart disease afford the typical illustrations of the close relation between the vital capacity and dyspnea. Peabody points out that the essential difference between normal subjects and patients with heart disease with regard to the production of dyspnea is not that cardiac patients are necessarily more sensitive to any given stimulus to the respiratory center, but that they cannot stand so great a stimulus. Cardiac patients become dyspneic easier than normal subjects because they are unable to meet the rising stimulus to respiration with an adequate increase of pulmonary ventilation. The limitation of the depth of breathing is thus an important factor in the production of dyspnea in patients with heart disease.

Peabody and Wentworth have found further that compensated patients, who do not complain of dyspnea on exertion, have a normal vital capacity. Patients with more serious disease, in whom dyspnea is a prominent symptom, have a low vital capacity, and the decrease in vital capacity runs parallel to the clinical condition. Changes in the clinical condition are usually associated with changes in the vital capacity. As a patient improves, his vital capacity tends to rise, and as he becomes worse, it tends to fall.

Among the obvious causes of decrease in vital capacity are pleural effusion, emphysema and ascites. The distention of the pulmonary vessels, owing to an insufficiency of the heart, has also been suggested. If this is true, then, as Peabody and Wentworth propose, the determination of the vital capacity of the lungs may be of value as an early sign of cardiac weakness. Finally, in giving quantitative information as to the tendency to dyspnea, such estimations have a practical value and incidentally give some indication of the actual clinical condition and reserve power of the patient.

FACTORS AFFECTING THE GERM CONTENT OF MILK

As we have stated before, the modern demand for sanitary milk of a higher grade inevitably involves an increased expenditure in labor and equipment appropriate to bring about the desired results. In the interests of economy, it is imperative, therefore, to provide dependable information regarding those factors which are especially responsible for the supply of satisfactorily clean and wholesome milk. Obviously, it would be an extravagant folly to incur unnecessary expense in connection with items that cannot at best contribute anything to the improvement of the milk supply; whereas every effort must be made to safeguard a food as important as is milk, at every step in its production, whenever the possibility of deterioration unquestionably exists.

The quality of milk from the sanitary standpoint is at present judged essentially on the basis of its chem-

5. Taylor, Rood: Hunger and Appetite Secretion of Gastric Juice in Infants' Stomachs, Am. Jour. Dis. Child., October, 1917, p. 258.

6. Peabody, F. W.: Clinical Studies on the Respiration, III, A Mechanical Factor in the Production of Dyspnea in Patients with Cardiac Disease, Arch. Int. Med., September, 1917, p. 433. Peabody, F. W., and Wentworth, J. A.: Clinical Studies of the Respiration, IV, The Vital Capacity of the Lungs and Its Relation to Dyspnea, ibid., p. 443.

ical composition and its germ content. The latter in particular has come to be regarded as an index of cleanliness and wholesomeness. The limit of bacterial contamination permissible has been fixed by law in many communities. Says Professor Harding of the University of Illinois:

> No matter what is our personal judgment regarding the wisdom of such bacterial standards, the legally constituted authorities having thus established these limits of bacterial content, the burden rests on the producer and the retailer to observe them. When adjusting their business methods to such variable limits as those mentioned above, it is important that the dairymen have fairly accurate knowledge of the relative importance of the various dairy operations upon the germ content of the milk.

It is widely believed and insisted on for the guidance of dairymen that the construction and condition of the cow stable plays a very important part in the production of sanitary milk. The ubiquitous inspector is continually emphasizing the influence of barn conditions, so that large expenditures are continually being made by dairy farmers to meet the supposed necessities for securing recognition in the retail market. These features obviously cannot fail to add more or less to the item of cost in the production of milk—an item which should be cheerfully borne by the consumer if the expenditure is fully justified. It is surprising, therefore, to learn from investigations made in a large number of ordinary dairy barns by two of our prominent experiment stations that, when the influence of the utensils employed is excluded, the dairy barns themselves exert little measurable influence on the germ content of the milk.[1] Perhaps too little attention has been paid in the past to the utensils as a source of contamination. Competent dairy bacteriologists now tell us that, even under wide extremes in barn conditions, it is possible to produce milk with a germ content of less than 10,000 bacteria per cubic centimeter when the utensils are properly prepared.

Harding remarks that the mistaken impression respecting the relative importance of barn conditions in connection with germs in milk should not be taken as a criticism of health officials. Such officers are charged with the protection of the public health. When the facts are available, they utilize them. When exact information is lacking, they must proceed in accordance with their best judgment even though they recognize the fallibility of such judgment. Furthermore, as Prucha and Weeter[1] remark, this result must not be construed as a defense of dirty barns. They simply point to the fact that the large numbers of bacteria commonly found in milk do not have their origin in the barn. The findings of these recent investigations, substantiated by a series of independent investigations, cannot fail to be helpful to sanitary authorities, and may serve to readjust certain unnecessary economic burdens.

1. Prucha, M. J., and Weeter, H. M.: Germ Content of Milk, I, As Influenced by the Factors at the Barn, Bull. 199, Illinois Agr. Exper. Station, May, 1917.

THE COMPOSITION OF MILK FATS

The ordinary fats are regarded by chemists as glycerids; that is, compounds of glycerol (glycerin) and fatty acids. It must be borne in mind that as they occur in nature the fats and oils are never single chemical substances; indeed, they are seldom composed entirely of glycerids. Just as up to only a few years ago the proteins of nature were commonly considered as a class in their biologic functions, and distinctions between different types of proteins were rarely if ever made in a physiologic sense, so fats have until the present time been dealt with groupwise in practically all considerations of their nutrient or biologic significance. We know today, however, that the rôle of individual proteins in the organism depends on their digestibility and on the character of the amino-acids which they can yield. Certain of the amino-acids, like tryptophan, seem to be far more indispensable, for instance, than others like glycocoll, so far as their production from the dietary proteins is concerned.

May not some similar point of view be applicable to that somewhat heterogeneous group of glycerids known as fats? In any fat or oil there is a mixture of several glycerids, with varying quantities of cholesterol or substances related to it, and often free fatty acids or soaps as well. These considerations, Leathes[1] remarks, show that the number of compounds of fatty acids which have to be dealt with in biologic chemistry, and for which we have no single comprehensive name, is very large; and also that the precise constitution of any one such compound may, even when it is not complicated by the presence of phosphoric acid, be difficult to determine; whereas, when this complication does exist, the difficulty is bound to be greatly increased. In fact, at present these more complicated compounds of the fatty acids are among the most obscure of those with which animal or vegetable chemistry has to deal, more obscure and indefinite even than many of the proteins in human diet.

Evidently, in the case of the fats, the first point of attack in the move toward progress must consist in a better understanding of the nature and proportions of their constituent fatty acid groups. And no fats appear to be more worthy of elaborate analysis and study than those which go to make up part of milk, the prototype of perfect foods. The glycerids of a very large number of fatty acids occur in nature, and the possibilities of their mixtures and combinations must consequently be manifold. We can only agree with a recent student of the subject who remarked that no problem presents greater difficulties to the analyst than the quantitative separation and determination of a mixture of fatty acids, and the acme of difficulty is reached in the case of the most complicated mixture of fatty acids which is found in butter fat. For this reason, investigators have mostly been content to limit their

1. Leathes, J. B.: The Fats, London, 1913.

attention to the determination of various more or less well defined groups of acids, such as steam-volatile, or water-soluble, or unsaturated acids, etc., whereby naturally only a very imperfect record of the variations in composition has been obtained by the research to date.

In a general way it has, of course, long been known that the mixture of glycerids of the fatty acids occurring in milk, and spoken of as butter fat, differs conspicuously from the other fats likewise rich in olein, palmitin and stearin by yielding more butyric acid (the volatile acid to which the odor of rancid butter is said largely to be due) and less stearic acid than other food fats. We heartily welcome, as a conspicuous step in advance, the investigation of the distribution of the fatty acids in the milk fat of the cow and the sheep, carried on by Crowther and Hynd[2] in the Institute for Research in Animal Nutrition at the University Department of Agriculture, Leeds, England. They state that there is clear evidence that the only acids present in more than minimal proportions are the unsaturated acid, oleic acid, and the eight saturated acids of the acetic series, representing the members with an even number of carbon atoms from C_4 to C_{18}, namely, butyric, caproic, caprylic, capric, lauric, myristic, palmitic and stearic acids.

The new values for butyric acid (4.3 per cent. for cow's milk fat and 6.5 for sheep's milk fat) are higher than those usually given. The presence of a very considerable content of lauric acid (about 5 per cent.) was firmly established, so that, as the English investigators state, the usually accepted idea that only traces of lauric acid are present in butter fat must be modified. They further find that palmitic acid is present in much smaller proportions than usually assumed, while myristic acid is more abundant. The content of stearic acid, regarding which there has likewise been considerable debate, was found to be 3.4 per cent. for cow's butter fat and 4.4 for that of the sheep. About two fifths of the total fatty acids consist of oleic acid.

The more precise appreciation of the nature and quantities of these various fatty acid groups which can be liberated by the digestive processes for absorption from milk, cream or butter may pave the way for a better understanding of the rôle of fats in the economy. In any event, the complex mixture conventionally termed "fat" is revealed in the case of the milk product as a source of a considerable number of definite compounds. Thus the relation of fats to their antecedents in metabolism, the precise mode of the degradation of fats when they furnish energy to the body, and the origin of intermediate stages of fat catabolism which sometimes crop out as pathologic products—these and other problems come appreciably nearer to an intelligent solution when the substrate involved is clearly understood.

2. Crowther, C., and Hynd, A.: The Distribution of the Fatty Acids in the Milk Fat of the Cow and Sheep, Biochem. Jour., 1917, **11**, 139.

Current Comment

MEDICAL RESERVE OFFICERS AND ORDERS TO ACTIVE DUTY

"How soon shall I be called on to report for active duty?" This question and the uncertainty of its answer has been probably the most trying experience of the civilian physician who has accepted a commission in the Medical Reserve Corps. This uncertainty began on the day on which the commission was accepted because on that day the newly made medical officer realized that he had become subject to call, and must be ready to respond. There was a time in the early weeks of the war when medical reserve officers were ordered out on very short notice, often giving them only one or two days in which to close up their personal affairs. Some physicians, aware of this condition, even gave up their offices, practically closed their business, or made arrangements which they would not have made had they not presumed that they would be ordered out very shortly. These emergency conditions have now passed. No such uncertainty rests on the man who accepts a commission today, for the Surgeon-General's Office has announced that members of the Medical Reserve Corps will be given at least fifteen days' notice before being ordered into active duty. It is quite possible that even more than fifteen days will be given those who require more time in which to arrange their affairs.

THE NEW YORK CATSKILL WATER SUPPLY

The formal dedication, October 12, of the great Catskill aqueduct should not pass without notice in these days of absorption in warlike activities. It is not a question merely of the gigantic features of the undertaking from an engineering standpoint: a storage reservoir that can hold 132,000,000,000 gallons of water; an aqueduct 120 miles long starting at 610 feet above tide line and dropping to 1,114 feet below sea level when it passes under the Hudson River; a delivery capacity of 500,000,000 gallons daily; the cost to date of about $140,000,000; there is also the fact that this greatest of all water systems supplies a water probably as pure and free from all liability to produce disease as any in the world. The best expert advice in the country on sanitation has been obtained and acted on. A carefully prepared and controlled watershed, full utilization of the natural purification effected by extensive storage, filtration, aeration and chlorination have all been brought into play to create a high degree of safety and potability. No stone has been left unturned to make the new Catskill supply, what it probably really is, the best large water supply in the world. It is pleasant to learn that the whole undertaking has been carried out in a spirit of the highest citizenship.

"The construction of the Catskill aqueduct, covering a period of ten years, affords a model of honest, clean and efficient municipal government in which every citizen should take pride. It is being finished within the original estimate of expense, and is a commendable example of municipal economy. It has been completed within contract time, with-

out a labor strike, and is a tribute alike to the commission which directed the work, the contractors who carried it out, and the workmen who labored faithfully to build it. In its inception it was fostered by citizen bodies having the public interests at heart, and in its execution it had their invaluable support. It is a testimony of what disinterested civic spirit in cooperation with faithful public officials can accomplish."[1]

The *Engineering News-Record*, Oct. 11, 1917, has this to say:

Among the great dams of the world now stand, as a result of the water board's work, the Ashokan and the Kensico. The Hudson River and the Narrows siphons are the only two of their kind, while the many miles of aqueduct—in tunnel, cut-and-cover and steel pipe siphon—are without precedent, capacity and length both considered, in water-works records. All of this work, involving an expenditure of millions, has been kept free from suspicion of the honesty of any one connected with it, and from ugly controversy about the capability of the designers or the quality of the work; and this in a city where political contests have been fought bitterly, and where many efficient heads have been removed because principles were upheld. The engineering bureau has kept out the inefficient; has successfully resisted the onslaughts of those who might have sought improper advantage, and has given to the city a set of structures which experts have pronounced excellent in the highest degree.

"THE BASE HOSPITAL AND THE ICE MACHINE"

Some months ago, under the above title, we commented on the fact that one local Red Cross organization had refused to approve the appropriation of money for the purchase of an ice machine by a base hospital. The directors could see little use for an ice machine as part of the equipment of a base hospital. Now, far be it from us to take the credit through that little comment for the sequel, but it is very interesting to note in the *Official Bulletin* for Wednesday, October 24, that the Red Cross War Council has appropriated $70,200 for ten portable ice making plants for use in connection with the Red Cross base hospitals in France. The appropriation was made at the request of the American Red Cross Commission to Europe. So the base hospitals will now have their ice machines.

DEATH OF REVERE OSLER

In announcing the death of Sir William Osler's only son in the issue for September 8, THE JOURNAL stated that Revere Osler had been wounded while on active duty in France, and was taken to England for treatment, where he died. Recently Dr. D. L. Moore of Columbus, Ohio, sent to THE JOURNAL a quotation from a letter dated September 21 written by a nurse in one of the American hospital units in France. She said: "One of the saddest things that happened during our stay in Belgium was the death of Sir William Osler's only son. He was brought to our station one night with a bad chest wound, a perforating wound in the intestines, and an injured thigh. Drs. Brewer and Darracks got Dr. Crile, who was in a station back of us, and also Dr. Harvey Cushing, who was near, in consultation. Major Darracks, with whom I worked, did the operating, Major Brewer assisting, Dr. Crile giving a direct blood transfusion, and Dr. Cushing consulting generally. Everything was done that could have been done in any hospital, but the boy died several hours later. He was in the Royal Field Artillery service." A letter has just been received from Sir William Osler, dated Oxford, October 7, from which we quote: "My son Edward Revere was wounded in the chest and abdomen by a shell August 29, was taken to the Casualty Clearing Station, at which my good friends George Brewer of New York, and George Crile were stationed. Darrack of New York operated and Crile transfused. His life-long friend Harvey Cushing was also with him. Everything possible was done, but he died about twenty hours later. Many of my friends would be glad to know of this." It is gratifying to the thousands of American friends of Sir William Osler that when his son was mortally wounded the best medical and surgical skill was available, and especially that this skill rested in old-time American friends of both the father and the son.

BACTERIA AND VITAMINS

It is evident, Lusk writes, that the science of nutrition includes something more than the production of energy from fat, carbohydrate and protein. There must be certain salts and certain qualities of protein in the diet, and there must be minute amounts of vitamins. The food hormonēs, which are present in small amounts in various natural foods of both animal and vegetable origin, are essential to "the harmonious correlation of the nutritive functions." They have already entered into the popular literature of nutrition. This is highly appropriate; for although these as yet unidentified components of the diet are present in very small amount in most foods, healthy life seems to be impossible for any considerable time without them. Even among plants, with their large synthetic powers, growth seems to be influenced by factors similar to the food hormones of animal nutrition, if one may judge from the researches of Bottomley in England. He believes that vitamins or comparable hormones may be destined to play an important part in the cultivation of vegetable foodstuffs. And now come the bacteria to claim the need of such hormones. In an investigation on the chemical factors involved in the growth of the meningococcus, conducted at Cambridge by Dr. Dorothy Lloyd,[1] the vitamins have found recognition. We are told that the primary cultivation of the meningococcus in vitro is possible only in the presence of certain accessory growth factors (the so-called vitamins) present in blood, serum, milk and other animal fluids, and probably present also in vegetable tissues. These accessory substances are described as substances that are moderately heat stable. The vitamins are not the sole feature leading to success in cultures. The presence of suitable amino-acids is equally important; but these have already begun to be recognized as the appropriate bacterial pabulum.

1. Weekly Bull., Dept. of Health, New York City, Oct. 13, 1917, p. 324.

1. Lloyd, Dorothy J.: On Vitamins, Amino-Acids, and Other Chemical Factors Involved in the Growth of the Meningococcus, Jour. Path. and Bacteriol., 1916, **21**, 113.

Medical Mobilization and the War

NEWS FROM A FOREIGN BASE HOSPITAL

U. S. Army Base Hospital No. 3 (Harper, Detroit)

Major Angus McLean, director of Base Hospital No. 17, Harper Hospital, Detroit, now United States Army Hospital No. 3, writes from France: "We have a fine hospital here of 600 beds, and are enlarging it to a 1,200 bed hospital. The hospital is located in the vicinity of the American troops. There are about fifty American patients here now. The following is a list of our staff as at present constituted: director, Angus McLean; assistant directors, Majors P. M. Hickey, H. N. Torrey, and George E. McKean; Capts. L. G. Hirschman, E. C. Cullen, Rolland Parmeter, W. D. Ford, Robert Owen, James Breakey, John C. Dodds, William E. Spitzley, A. Stirling, Alfred LaFerte, T. K. Gruber; Lieuts. Duncan Campbell, E. J. O'Brien, Fred Buesser, C. B. Lockwood, B. H. Larson, B. B. Belt, L. J. Cushman, H. Gregory; dentists, Earl Barkley and William T. Shannon."

PATRIOTIC PHYSICIANS OF MURPHYSBORO

Dr. Charles Molz of Murphysboro, Ill., writes that Murphysboro is a city of 9,000 people, and that of the seventeen physicians in the city, thirteen have taken the examination for the Medical Reserve Corps. Of the remaining four, two were too old, one a lady, and the other was physically disqualified. Of the thirteen physicians who applied, nine were accepted and four were rejected. Six of the nine are now on active duty.

UNITED STATES DENTAL SCHOOL IN PHILADELPHIA

Announcement is made that the Surgeon-General has ordered the establishment in Philadelphia of a school for training in oral surgery and plastic reconstruction of the face and jaws of men who have been maimed in the war. Twenty-five or thirty recently appointed officers of the medical reserve service will be detailed for didactic and laboratory study at the institution. Dr. Wilmer Krusen, director of public health and charities, has agreed to afford facilities in the dental wards of the Philadelphia General Hospital for clinical demonstrations, and has offered his office in city hall for meetings of the teaching board. Dr. Charles R. Turner, dean of the Evans Institute of Dental Surgery, will have charge of the organization of the teaching staff. He will be assisted by Dr. Herman Prinz of the institute in selecting the staff. Lecturers and operators from other medical and dental schools of Philadelphia, who are specialists in oral surgery, will become members of the staff.

NEWS OF THE TRAINING CAMPS

At Fort Riley

The campaign for the sale of liberty bonds in the Medical Officers' Training Camp at Fort Riley was a marked success. Six hundred and eighty-seven medical officers subscribed for a total of $95,000; the total for the camp was $213,000, an average of $73 per man. The total for the post was $6,000,000.

Equitation at Fort Benjamin Harrison

The real meaning for the concentration of energy in the training camps for medical officers is beginning to come to the surface. Physical conditioning has been in progress from the first, and still continues. How necessary it is to "be fit" is best evidenced by the test of endurance needed for "equitation," for "periods in the trenches," for "gas mask exercise," and for all the advanced military work now in progress. Very few of the doctors before the training in "setting up exercises" and the "fours right" and "fours left" drills could have stood up under the fatiguing work of the present.

At the medical officers' training camp at this post the A. B. C.'s have been well learned, and the actual work needed in campaign, as developed by the present war, is well under way. Not the least of this is horsemanship.

You may wonder at this assertion, believing, as do many, that cavalry no longer is needed. Even though cavalry is not conspicuous at present, it still exists, and must have medical officers attached to its units. Likewise, in the artillery, only the heavy type of gun is moved by motor. Most of the guns are horse-drawn, and those artillerymen who do not ride on the guns go horseback. Thus, here, too, the regimental surgeons must know how to ride. As a matter of fact, all surgeons in the Army are classified as mounted officers, and, therefore, must know the essentials of horseback riding. Not only is it necessary for the medical officer to be able to "stick on" an ordinary horse, but he must be familiar with the art of the care of the horse, and blanketing, saddling and bridling must be mastered.

The students on duty here have a most excellent advantage in this connection. It happens that there are a goodly number of fair horses for our use, and, better still, both the instructor and his assistant are expert horsemen. Hence, equitation, a part of the course which all must take, finally becomes a pleasure.

"You may think it is fun to teach civilian physicians to sit and stick on horseback; it is *not*." That was the remark of the assistant teacher in equitation when I asked him what he thought of his job. An active cavalry officer for seven years, but now a physician and medical officer, he felt the responsibility that rested on him, yet his natural humor was expressed when he remarked, "I cannot but think vividly of Don Quixote and his Rosinante when I see the equitating medicos."

All joking aside, here is what is actually being undertaken and accomplished: Under the supervision and tutorship of Major H. McC. Snyder, M. C., U. S. Army, himself a most accomplished horseman, and his assistant, Lieut. V. C. von Unruh, M. R. C., U. S. Army, who served as a cavalry officer for seven years in one of the European armies, the doctors are taken out for lessons in horseback riding from 1 to 5 o'clock every afternoon. At the picket line they find 130 horses standing, waiting in awe, and most assuredly in humor, for of this horses possess an abundance. Here the doctors are taught to fold the saddle blanket, to put it on the horse's back, to put on the saddle, tighten the cinch, measure the proper length of stirrups, and bridle their mounts. Next comes the difficult task of mounting, which feat must be mastered before the ride begins. Mounting inside the picket line is forbidden, and the horses must be "led out" to the line that forms for the start of the ride. When at last, after many trials and tribulations, with fractious horses loath to leave their feed boxes, the embryo cowboys are in line, the critical eyes of teacher and assistant inspect the squad. Here a blanket is put on wrong side out. "Unsaddle and put it on right" is the order. There a cinch is artistically woven with a beautiful figure-of-eight between the rings—truly a testimony to this surgeon's accomplishment in bandaging. Off must come that cinch, and on it must go correctly and quickly—mayhap, against the loud protestations of the doctor, who has "saddled a hundred horses," and thinks that the cavalry drill regulations may be improved vastly by his wise and valuable suggestions. Some cinches have been drawn so tight that the poor horse, when the doctor mounts, feels a constricting shortness of wind and there is a bolt and a kick, a jump and a lunge, and the poor "doc" kisses the sod, not from choice, but of sheer necessity. The saddle of another is so loosely cinched that, on mounting, the reserve corps surgeon gives a clear exhibition of "reversion to type." The saddle slides down on the left side of the horse, and the lieutenant or captain, or perhaps the major, hangs nervously holding on to pommel, saddle, stirrup and reins. You could not tell, on a bet, whether that struggling mass of living tissue was a doctor or his quadrumanous prototype of man.

When some eager enthusiast forgets to keep off the horse until the order to mount is given, he is usually taught his lesson by the horse, which sticks to the line like glue and refuses to advance. Instead of responding to the rider's "clucks," he bolts, rears and kicks until Mr. Caballera becomes detached from his *Equus caballus*. All that is left in such an emergency is to regain possession of that home-loving critter and "lead out," amidst the jeers of the waiting line of horsemen.

"Prepare to mount," "Mount" is commanded. All except three doctors manage somehow to climb to the Olympian heights of their saddles. Three unfortunates, however, now perform a veritable rococco minuet with their horses, circling around and around, *vis-à-vis* and *dos-à-dos*, until some kind orderly helps to hold the mount, and at last the seat is gained. "To have and to hold," the poet said—and this same thought was mine when I saw how easily a medico will part from his horse—almost as easily as the proverbial man from his money.

"Forward—March," and the squad moves on to the practice grounds, there to be divided into groups of from twelve to fifteen men, so that each may receive individual instruction in the use of thigh, knee, stirrups, reins and last, but not least, of the glutei. Some of the latter get "burned" because of stirrups too short, and many are the complaints on the following day. The lessons continue, however, and so do the "burns." Once a "burned one" was sent home, and on reaching the picket line a commiserating soul asked, "What's the matter, Doctor?" "Well, Doctor, you see, it's this way: My blisters broke, and so I had to come home."

The initial exercises mastered, the squad goes out for a cross-country ride—aye, more than this—to jump ditches and hurdles! All goes according to program until some captain's horse bolts and races wildly for home, at a furious gallop, with half the squad following helplessly in his wake. No pullying on reins, no "Whoa, boy," no bracing hard in stirrups is of any avail. Mr. Horse has seen the leader's example, and now has his nose homeward set. Off they go like the phantom hunt, even the hounds at their sides gathering from along the roadway as the wild chase passes on.

On some other occasion a "medic" approaches the teacher with a broad smile hiding his face: "Oh, I can ride quite well, I've been on horseback all my life." (And he is 50 now.) Teachers are wise to such presumptuous assertions, and, of course, delight in giving this kind a special opportunity to prove his claims. When, a little while later, the command comes: "Gallop—March," Mr. Wise Horseman's arms flop like an eagle's wings, and his glutei imitate the steam engine's piston-head. Ah, yes, such "physical sitting-up" exercises do prove painful from more than one point of observation.

However exhilarating and fascinating the trip may have been, much of the joy evaporates when, on arriving back at the picket line, the order goes out to dry your horse with straw and, when dry, curry and brush him clean. How the ambitious rider now wishes he had curbed his desire for that last gallop which started the sweat on his horse. The horse, however, must be dried and cleaned, and, with firm resolves to stick to a walk as long as possible on the next ride, the doctors get back to camp to satisfy their ravenous appetites.

After all is said and done, our "medics" really like horseback riding. When their temerity has been subdued, and they have become accustomed to horse and saddle, they make quite a different picture. At the end of the four weeks' course in this work, although not expert horsemen, the students have learned how to ride.

NEWS OF THE CANTONMENTS

Thirty-First Division, Camp Wheeler, Macon, Ga.

The camp is undergoing an epidemic of measles. Every regiment brought in measles, and in some the disease has spread until several hundred cases have occurred. But three cases have been followed by pneumonia, and in no case has death or any serious permanent result followed.

Thirty-three cases of pneumonia have occurred in this camp with but one death. A careful, detailed record is kept of every case with the hope and expectation that tabulation and study of these cases will throw much light on this fatal disease.

Colonel Duncan spoke at a meeting of the Chamber of Commerce, Friday, called for the purpose of combating prostitution in Macon. Those who took part in the meeting were of one mind as to driving out street walkers and cleaning up malodorous hotels. The colonel addressed the Red Cross chapter the same evening.

Shortage of overcoats, blankets and heavy uniforms is believed to have been a factor in the recent increase in sickness.

The commissioned medical personnel of the Third Division is almost complete. Half a dozen medical men are now here, caught by the draft net. They will be examined for commissions.

BASE HOSPITAL NOTES

With seven wards of the 500 bed hospital incomplete and unoccupied, 642 patients are being well cared for tonight, just nine days from the opening.

As is to be expected in a new camp, measles and venereal diseases comprise a large majority of the cases, there being 271 of the former and 135 of the latter.

There is one case each of diphtheria, cerebrospinal meningitis and varioloid, and twenty cases of pneumonia.

The admissions are already well over the 900 mark.

The commanding officers' quarters were burned on the night of the 24th, and it required strenuous efforts on the part of the corps to save the hospital; but not a patient was injured or even disturbed. Before the ashes were cold, rebuilding began.

The enlisted men have met the situation as soldiers should, and have done the work, though there are no nurses to help and the corps itself consists of only 126 men, being about seventy short. This shortage was supplied today by drafting on the field hospital for men; the Nurse Corps is expected soon.

The base hospital subscription to the Liberty Loan was the highest per capita of any organization in the division, and entitled to first place in review; but officers and men were too busy to attend.

ONE HUNDRED AND SIXTH SANITARY TRAIN

At the Division Review, with the organizations rated according to their per capita subscriptions to the Liberty Loan, the sanitary train occupied the position of honor on the extreme right of the division. With a commissioned personnel of thirty-four and enlisted strength of 378, the total per capita subscription per man was $65.16. The total amount subscribed by officers was $5,750, a per capita credit of $168.82; the enlisted subscription was $21,100, or a per capita of $55.82. The ambulance company battalion led the train, having a few more dollars per capita to its credit than the field hospitals. The leading company of the entire train was Ambulance Company No. 121, commanded by Capt. Robert F. Ashworth, Medical Corps, Alabama National Guard. The passage in review was well conducted, alinements were accurately maintained, and favorable commendation was heard on the appearance of the medical troops in comparison with their brethren of the line.

The camp site formerly occupied by the camp hospital has been cleared and burned over. The removal of the many hospital ward tents of the field hospital companies has left a void to which, as yet, our eyes are not accommodated. Despite the size of the task we had, we frankly admit that we miss it.

On the night of the fire at the base hospital, the Florida, Georgia and Alabama field hospitals held themselves in readiness to pitch their canvas to accommodate the 400-odd patients of the base hospital, should the spread of the conflagration require it. The ambulance companies stood ready with their entire motor and mule-drawn equipage to evacuate the wards should it become necessary. Fortunately the flames were confined to the small building in which they started, and we were enabled to turn in with our minds at ease.

The work on the framing and flooring of the tents of this command is now practically completed, with the resulting increase of comfort of the men during the chilly nights.

The tremenduous amount of work being thrown on the base hospital, with its inadequate enlisted personnel, has necessitated the detailing of a total of seventy-two men from the train, thirty-six from the field hospitals, and thirty-six from the ambulance companies. While this interferes, to some extent, with the maintaining of a uniform drill schedule, it is evident that the knowledge acquired by these men at the base hospital will be invaluable and tend more rapidly to complete their training as members of the medical department.

On Wednesday evening, last, the weekly social of the officers was held with its usual success. The brisk air of the evening added to the enjoyment of the dancing. Luncheon, with coffee, was served in the mess hall between dances. The orchestra of the Florida field hospital augmented by a new violinist rendered the music.

The anticipation of a roast possum dinner was destroyed by the fact that some unkind person liberated Brother Possum from his cage. Said possum was captured in a foot race by Major Job C. Patterson, director of field hospitals. The genial major must secure another animal in order to make good his repeated promise of "possum and 'taters."

The organization of ladies' committees for the procuring of delicacies for sick soldiers is progressing favorably, the idea being to concentrate especially on those men who are convalescing from serious illness.

The missing flat car has finally arrived, containing the two motor ambulances necessary to complete the full complement of one company now on hand. This now gives us twelve standard GMC ambulances and No. 13 Car, known as Spare Parts and Repair Car. The good news that another complete motor ambulance equipment is on the way has been

received. The motorcycle cars, with their "bath tubs," we understand, are also en route.

Fortieth Division, Camp Kearney, Linda Vista, Calif.

The cantonment of the Fortieth Division is located on a plateau, 17 miles northeast of San Diego. The surrounding country is sparsely settled and furnishes enough variety of contour to allow maneuvers of all kinds to be made. It is covered with a scrub brush of greasewood, sage brush and cactus. The soil is shallow, of the type known as gumbo. A few inches below the surface is a strata of hard pan impervious to drainage. All excavations in the cantonment had to be blasted. The amount of the annual rainfall in this vicinity is very limited and confined to the winter months. There are no streams or springs in the vicinity of the camp and very few wells. The water supply of the cantonment is furnished by the city of San Diego, which installed a complete pipe line, with reservoir, to take care of the cantonment. A complete sewer system was installed, with septic tanks. The garbage is removed by contract. Refuse is hauled to a designated dumping ground some distance from the camp. The climate is equable, the temperature never reaching the freezing point. Variation from noon to midnight is great, but no provisions have been made for heating the tents. The ocean is only a few miles from the camp so that fogs are often found in the early morning. The number of cloudy days is practically nil.

PERSONAL

There are several medical officers attached to the Fortieth Division who have seen active service abroad. Major W. A. Jolley served with the American Red Cross at Belgrade, Serbia, during the typhus epidemic and was present during a bombardment and capture of Belgrade by the Germans. Major J. R. McDill was sent to Germany for the American Physicians Expeditions Committee of New York in June of 1916. Major Phillip S. Chancellor was in France for several months in 1916. Lieut. Kenneth Beymer Turner was an officer in the English Expeditionary Force in Serbia. He was given a commission in the French Army after the invasion of Serbia. On the entrance of the United States into the war he returned to America and joined the army of the United States. Capt. Byron Stookey served in France with the Harvard Surgical Unit during 1915. These officers will be a great value in preparing the division for foreign service.

Forty-First Division, Camp Greene, Charlotte, N. C.

This camp is made up of militia organizations of the several Western States, to wit, Washington, Oregon, Idaho, Montana, Wyoming, New Mexico, North Dakota and South Dakota. It makes a distinctive unit, as a war factor, because many of the men served on the Mexican border. Of course there have been quite a few new enlistments since then, but a good nucleus for a fighting machine had already been started. The change from the West to the East has added "pep" to the men. All want to show what good material the West can produce to help win victory for our country.

The camp is pleasantly situated in a rolling country and mostly in cotton fields. The climate is good, and the surroundings aid to make a good training camp. All officers and men are housed in tents, with floors and sides. For heat, the Sibley stoves are used, thus making it comfortable for all.

The base hospital has an area of about 67 acres, and has buildings erected for all conveniences of patients and attendants. Major W. L. Sheep, M. C., U. S. Army, is the commanding officer, and there are thirty-one medical officers and 125 enlisted men. All those with contagious diseases, all who require medical or surgical treatment, other than those slightly ill or wounded, and those under observation are sent there. At the base hospital a staff for dental work is established, besides the regimental units, which have one or more dentists assigned to duty with those units.

Capt. John T. Rugh, M. R. C., has been assigned as instructor in orthopedic work. Lieut. Paul V. Anderson, M. R. C., is in charge of the neurologic department. Major Francis W. Palfrey, M. R. C., has charge of the tuberculosis and heart examinations. These medical officers examine the men of the division in their separate specialties, and weed out the noneffectives, all of which aids in the building of a very effective fighting machine.

Capt. Leonard A. Ensminger, M. R. C., is the medical officer assigned to give instructions to all the officers and men of the division in gas defense.

Lieut.-Col. O. G. Brown, M. C., U. S. Army, is the division surgeon. The assignment of all the medical units is made through his office, which entails an immense amount of good judgment and experience.

The sanitary train is composed of four field hospitals and four ambulance companies. Its quota is practically completed.

The percentage of sickness in the camp has been the lowest, with one exception, of all the cantonments. One death has been reported thus far from pneumonia. Meningitis has appeared in the camp; two cases were positive, one reported not positive. All the patients are recovering. Strict quarantine and other measures are taken to prevent the spread of the disease, including microscopic examinations of cultures taken from the posterior nares of all men in quarantine.

SOCIAL AND PERSONAL

Brig.-Gen. Henry Jervey and wife entertained, Saturday, October 13, from 2 until 6 p. m., for officers of the division.

Regimental bands play daily at the commanding general's headquarters from 4 to 5 p. m.

The study of French has been taken up by officers and men, and classes are held at regular intervals.

Eightieth Division, Camp Lee, Petersburgh, Va.

When the last notes of Camp Lee were sent to THE JOURNAL there were 38 medical officers assigned to the base hospital and 80 medical officers in the division. Since that time 59 medical officers have reported.

With the steady increase in the number of troops at Camp Lee the increase in the medical commissioned personnel was warmly appreciated and it will considerably lighten the labors of the medical officers. There are a number of training battalions at Camp Lee as well as the regular units of the division. The medical officers attached to these battalions have been constantly busy with physical examinations and mustering and then when they see the end of this work they suddenly learn that these new troops are to be transferred to some other camp. A surgeon accompanies each group of men that are transferred, and when the medical officer returns he finds physical examinations and muster awaiting him again. Captain Williamson, Lieutenants Tunnell, Stover and Miller have recently been through this experience and Lieutenant Miller's report of his work since his arrival shows what the medical work of these battalions means. Lieutenant Miller arrived in the middle of September and began the work of completing the physical examinations. Just as he was nearing the end of his work he was assigned to assist another medical officer's unit in their mustering work. This work completed, he accompanied 600 men to Camp ——. Entrained at Camp Lee, Friday morning, Capt. Alfred Degerman in charge, and reached Camp ——. Though the skies were overcast, not so the spirits of the men, who were joyous as they marched to the training station led by the junior line officers who had labored with them for several weeks to get them in shape for movement. So diligent was this work that, amazing as it may appear, these men, mostly from the farm, workshop and mine, were transformed in this quite short period to acceptable looking and acting soldiers. Their behavior en route was excellent and the medical officers had but two unimportant cases to attend. In contrast to other troop trains reaching Camp —— at or about the same date, this command was unfortunate in that there were no sleeping accommodations provided for officers or men. In addition, through failure to provide a key for the gas supply, the train was in darkness until between 8 and 9 p. m.; a station was reached where a key was procured, but in spite of these discomforts and the unfortunate inability of the supply officer to procure coffee for the men Saturday morning, they still had "kick" and were full of "pep" as they marched to the receiving station on leaving the train. Here we were met by the receiving officer and our commanding officer, relieved of further responsibility, every man responding to his name at roll call. Camp —— is beautifully situated, just 13 miles from —— with a fine approach of improved road. While we were favorably impressed with the camp, we all voted Camp Lee, Va., "Premier," and were not loth to return, arriving at Camp Lee, Va., on Tuesday.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

SOCIAL WORK FOR SOLDIERS

Since the number of men on the streets of Louisville has been increased by the soldiers in the cantonment at Louis-

ville, the civic bodies have again begun the agitation in favor of the establishment of public comfort stations in the downtown district. The importance of these stations was emphasized by the Louisville Commercial Club, during the presidency of Dr. Henry E. Tuley, but succeeding city administrations have plead limited finances as an excuse for not erecting one or more stations. It is now pointed out that the daily population of Louisville is about one fifth more than at the beginning of the war, caused by the presence of the soldiers and the visitors brought to Louisville. The opening of the new Soldiers' Club House, at 619 Fourth Street, a four-story building, with all conveniences, will greatly aid but not meet the demands for such stations.

A special detail of officers clad in private's uniforms set out on Saturday for the purpose of securing information as to whether soldiers are securing intoxicating liquors, and in a general way investigating all form of vice. Col. C. F. Crain, provost-marshal, is endeavoring to limit both bootlegging and pandering in the outskirts of the camp reservation and in the city.

The Sick Soldiers' Cheer-Up Club is a new organization composed of the wives and daughters of out-of-town officers stationed at Camp Zachary Taylor. The club made its first visit to the camp base hospital and brightened the day for many a sick and convalescent soldier with gifts of flowers, fruit, cakes, cigarets and matches.

THE BASE HOSPITAL

At present, there are about fifteen wards occupied, three isolation, four medical wards, four genito-urinary, two surgical, one eye, and one nose and throat. There are about 400 patients in the hospital. Of these there were fifty-five measles, nineteen mumps, twenty-eight pneumonias and one cerebrospinal meningitis. There have been two deaths from pneumonia and one from streptococcic cerebrospinal meningitis. The medical staff is preparing to use the pneumococcus serum Nos. 1, 2, 3, 4 as soon as it can be sent from Washington, D. C. They are also examining for meningitis carriers and are planning to use in them the prophylactic treatment with meningococcic vaccine.

EXAMINATION OF DRAFTED MEN

Capt. Philip Stewart, Paducah, in charge of the surgical service at the base hospital, examines for the general surgical conditions such as hernia, flat-foot, joint injuries and for alleged or supposed defects which make the recruit limp in drilling. There are many of these, and it requires great skill and clinical judgment to detect those suspected of malingering. Capt. Victor Meddis, Louisville, has charge of the venereal cases. A great many cases of active syphilis are rejected. A great many recruits enter the camp with acute gonorrhea. These are isolated and treated for a few days, and if no complications exist, are then assigned to duty. Tertiary syphilis patients are not discharged but treated under Wassermann control. The neurologic cases are under the charge of Major Milton Board of Louisville. The neurologic ward is well equipped with special rooms for the observation of special cases such as dementia praecox, epilepsy and the acute insanities. Major William H. Wilder, Chicago, acts as consultant to the ophthalmic division of the reviewing board, while during his absence the work is in charge of Captain Barton. A great many cases of trachoma have been found. These are promptly rejected. At one time there were forty-five cases in an isolation ward under observation. Major Frederick Menge, Chicago, is in charge as consultant of the ear, nose and throat division. During his absence this department is looked after by Capt. Lawrence Littig, Davenport, Iowa. Capt. M. J. Lichty, Cleveland, examines all suspected cases of tuberculosis. A board of tuberculosis examiners, consisting of ten officers of the reserve corps, contract surgeons, will shortly begin an examination of every accepted man in the camp, including all officers. The cardiovascular examinations have been made by Dr. Willard J. Stone, Toledo, contract surgeon. About 50 per cent. of all recruits referred for alleged disease of the heart are rejected. The remaining 50 per cent. are found fit after tests designed to show the fitness of the recruit to stand effort. A large number of hearts showing functional murmurs are accepted, while many supposed functional or accidental murmurs are found to have definite evidence of earlier infective damage to the valves or myocardium. In questionable cases the heart is examined by the fluoroscope and roentgen-ray plates are made by Captain Sprague, in charge of the roentgen-ray laboratory.

The action taken by the reviewing board as to physical fitness for service is final when approved by the division surgeon, Colonel Allen, to whom all papers are referred for final action. A great many letters are received from anxious parents, public officials and interested friends of him concerning the disability of certain recruits. Considering the manner in which the recruits were examined by local boards for the selective draft it is surprising that more gross errors of judgment are not found. About 3,000 cases have been referred to the reviewing board for decision, out of approximately 27,000 men in the camp. Of this number referred approximately 50 per cent. have been found to be unfit for service. The reviewing board has had some interesting cases of malingering follow certain rejections for genuine disabilities. Cases of malingering have followed rejections for pulmonary hemorrhages, nocturnal enuresis, chronic rheumatism, defective vision, and peculiar gaits.

PERSONALS

Major John Ridlon spent several days at Camp Zachary Taylor recently, during which time he gave two lectures to the medical and line officers on the care of the feet. Dr. Ridlon spent one summer at Plattsburg with the Medical Officers Reserve Corps in training there.——The officers of the reviewing board are: chairman, Major Walter Hamburger, Chicago; recorder, Lieut. Willard J. Stone, Toledo. Major Hamburger is also president of the disability board, chief of the Medical Service and member of the auditing and hospital council. The disability board has to do with the examination and discharge of enlisted men. Many new recommendations are being made by the Surgeon-General's Office to meet new war conditions.——Under Major Worthington, M. C., U. S. Army, commanding officer of the base hospital, all medical men attached to the hospital are drilling one hour a day, four days a week, and four night classes are being held a week on "Army Regulations" and the "Manual of the Medical Department of the Army."——Major-General Hale has extended the hours of leave for the drafted men to Wednesday and Saturday afternoons and Sundays. Medical officers have leave also on these days.——A wonderful service is being rendered the base hospital staff by a local organization known as the Woman's Service League in supplying needed equipment for the hospital. Ice bags, refrigerators, instruments of all descriptions, and special nurses in certain cases have been supplied on request of the commanding officer.——Steam was turned on in the officers' barracks at the base hospital for the first time on October 27. This was a welcome addition to the comfort of these hard-worked men. Pending the heating of the wards all seriously sick soldiers were sent to the soldiers' ward at the City Hospital. At the request of Major Worthington, the City Hospital Committee representing the University of Louisville recommended the appointment of Major Hamburger and Lieutenant Flexner, as members of the medical visiting staff, and Captains Stewart and Price, of the surgical staff, and Captain Sprague, visiting roentgenologist. One death has occurred at the City Hospital of a soldier from acute mania.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Oct. 19, 1917

1. Total strength of troops 988,372
   Admission rate per 1,000 (disease only) ..... annual 974
   Non-effective rate (all causes) 21.6
2. National Guard—strength 314,174
   Admission rate per 1,000 all camps (disease only) .. annual 952.6
   Non-effective rate all camps (all causes) 23.5

The following camps show admission rates for disease higher than average: Camp McClellan, 1,077.4; Camp Wheeler, 1,043; Camp Logan, 959.3; Camp Cody, 1,146.5; Camp Doniphan, 1,504.6; Camp Bowie, 1,001; Camp Shelby, 1,253.4; Camp Beauregard, 1,689.9; Camp Kearney, 1,279.5; Camp A. L. Mills, 1,221.7.

The following camps show non-effective rates (all causes) higher than average: Camp MacArthur, 36.6; Camp Logan, 29.05; Camp Doniphan, 27; Camp Bowie, 27; Camp Shelby, 38.1; Camp Beauregard, 33.9; Camp A. L. Mills, 31.4.

3. National Army—strength 421,619
   Admission rate per 1,000 all camps (disease only) .. annual 1,014
   Non-effective rate all camps (all causes) 17

The following camps show admission rates for disease higher than average: Camp Dix, 1,091.4; Camp Lee, 1,148.7; Camp Gordon, 1,079; Camp Pike, 1,220.3; Camp Dodge, 1,098.7; Camp Travis, 3,493.7.

The following camps show non-effective rates (all causes) higher than average: Camp Dix, 17.5; Camp Dodge, 24; Camp Travis, 40.6; Camp Lewis, 25.1.

4. Venereal Disease—
Admission rate Regulars 77.8
Admission rate National Guard (Camps) .....annual 118.8
Admission rate National Army 146.4
The following camps, National Guard, have rates above average: Camp Sevier, 254.7; Camp Wheeler, 168.2; Camp Logan, 158.5; Camp Cody, 148.5; Camp Bowie, 153.3; Camp Sheridan, 146.9; Camp Shelby, 142.3; Camp A. L. Mills, 186.8.
The following camps, National Army, have rates above average: Camp Jackson, 367.9; Camp Pike, 629.8; Camp Funston, 174.6; Camp Travis, 486.4.

5. Number of cases of pneumonia 198
Highest number in any one camp .....(Travis) 41
Number of cases of meningitis 12
Highest number in any one camp .....(Funston) 4

6. SPECIAL DISEASES REPORTED DURING THE WEEK ENDING OCTOBER 19, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
27th, Wadsworth	..	..	..	35	..	..	..	..	..	33,508
28th, Hancock	..	..	..	43	..	..	..	..	..	28,545
29th, McClellan	3	..	..	34	..	..	..	2	..	25,004
30th, Sevier	4	..	4	98	..	..	9	..	..	20,039
31st, Wheeler	5	1	5	65	..	..	27	..	..	17,181
32d, MacArthur	..	1	..	44	..	..	1	..	..	23,503
33d, Logan	9	..	16	61	..	1	3	..	..	20,025
34th, Cody	2	..	..	60	..	..	5	..	..	20,945
35th, Bumphan	7	..	10	41	..	..	45	..	..	21,644
36th, Bowie	..	1	3	59	..	2	20	1	..	20,172
37th, Sheridan	..	..	..	65	..	..	2	..	..	23,451
38th, Shelby	7	1	3	52	..	..	30	1	..	18,907
39th, Beauregard	..	..	9	12	..	..	31	..	..	6,413
40th, Kearney	2	..	..	7	..	..	6	..	..	8,863
41st, Greene	7	..	..	16	..	..	11	1	3	15,553
42d, A. L. Mills	4	..	4	37	..	..	..	..	..	10,218
76th, Devens	3	..	1	13	..	..	3	..	..	34,639
77th, Upton	..	..	..	28	..	..	..	..	..	29,217
78th, Dix	1	..	..	18	..	..	..	..	1	20,181
79th, Meade	1	..	..	9	..	..	..	..	..	18,738
80th, Lee	1	..	..	51	..	1	..	..	..	30,399
81st, Jackson	2	..	..	92	..	..	16	..	..	13,117
82d, Gordon	2	..	4	20	..	..	21	..	..	12,033
83d, Sherman	3	2	..	57	..	..	..	..	..	32,235
84th, Taylor	7	2	1	19	..	1	..	..	..	26,612
85th, Custer	1	..	..	17	..	..	2	..	..	17,743
86th, Grant	8	..	1	15	..	..	..	..	..	29,208
87th, Pike	2	1	23	277	..	..	46	..	..	23,368
88th, Dodge	14	..	..	52	..	2	3	1	..	23,144
89th, Funston	12	..	..	135	..	..	..	4	..	49,188
90th, Travis	41	..	4	203	..	..	..	..	..	32,695
91st, Lewis	1	1	..	78	..	..	3	..	..	33,779

	Regulars, U. S. Army, in U. S. only, 1916		Regulars in U. S. week ending Oct. 19, 1917		Nat'l Guard, All Camps, week ending Oct. 19, 1917		Nat'l Army, All Camps, week ending Oct. 19, 1917	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Admissions, diseases only, annual rate per 1000	....	613	....	873.4	....	952.6	....	1014.0
Pneumonia	....	2.59	22	5.4	50	8.2	99	12.2
Dysentery	....	3.97	5	1.1	4	0.6	6	0.7
Malaria	....	12.32	11	2.7	54	8.9	34	4.1
Venereal	....	91.09	316	77.8	719	118.8	1187	146.4
Paratyphoid	....	0.31	0	0	0	0	0	0
Typhoid	....	0.21	5	1.2	3	0.4	4	0.4
Measles	....	20.29	70	17.2	199	32.8	94	11.5
Meningitis	....	0.29	2	0.4	5	0.8	5	0.6
Scarlet fever	....	0.39	13	3.2	3	0.4	1	0.1

7. Deaths by causes—

Lobar pneumonia	9
Pulmonary tuberculosis	4
Bronchopneumonia	3
Cerebrospinal meningitis	2
Appendicitis	2
Typhoid fever	2
Septicemia	2
Peritonitis	1
Dysentery	1
Miliary tuberculosis	1
Myocarditis	1
Malaria, estivo-autumnal	1
Tuberculous meningitis	1
Cerebral hemorrhage	1
Endocarditis	1
Diabetes mellitus	1
Traumatism	2
Suicide	2
Fracture of skull	1
Cause not reported	3

THE CONTROL OF VENEREAL DISEASE IN THE ARMY

The meeting of the College of Physicians of Philadelphia, Oct. 3, 1917, was devoted wholly to a discussion of the control of venereal disease in military life. Major George E. de Schweinitz, M. R. C., presided. Before the meeting Dr. W. W. Keen presented to the college the retractor used in the operations on President Cleveland in 1893.

The Problem of Dealing with Venereal Diseases in Great Britain

Col. T. H. Goodwin of the British Army was warmly greeted. "Estimates made by the Royal Commission on Venereal Diseases," he said, "indicate that in the larger towns in England at least 10 per cent. of the total number of inhabitants is infected with syphilis, and that gonorrhea is even more prevalent. This would mean that in London alone there are 450,000 syphilitics. Sir William Osler places this disease as third on the list of what he terms 'killing diseases.' That venereal diseases have not been adequately grappled with as have other infectious diseases is due to the mistaken policy of silence." In the Army, notwithstanding that the best methods of treatment are in vogue and that the incidence of the disease has been diminishing, it was found that in 1912 the average number of men incapacitated was 593 which, with an army of 107,000 men, represented a loss of over 210,000 working days in the year. The rate of the incidence of the disease in the Army in 1913 was 5.3 per cent. per annum; for 1916 it was 2.1 per cent. per annum. During active service the disease is more adequately dealt with than during peace. Improved methods of educating the soldier on this matter, the provision of greater facilities for recreations in cantonments, and the decrease of alcoholism have had a very considerable effect in decreasing the incidence of venereal diseases. The national council for combating venereal disease, with Lord Sydenham as president, embraces many leaders of the medical profession, representatives of the churches, and many women social and philanthropic workers in close cooperation. The aims of the council are briefly: (*a*) provision for education and enlightenment; (*b*) provision of greater facilities for treatment; (*c*) provision of increased opportunities for study of these diseases on the part of medical practitioners and students, and (*d*) promotion of legislative, social and administrative reforms.

Up to June of last year, more than 600,000 soldiers had attended the lectures given. The point of view taken by the royal commission is that it is both the duty and to the interest of the state to see that venereal disease is promptly cured. Facilities for diagnosis are organized so far as possible in connection with existing laboratories in universities and in general and county hospitals. Wards in general hospitals for indoor patients are allocated to venereal patients. For outdoor patients, evening clinics are provided. The objection to the provision of special hospitals lies in the resulting publicity. It is recommended that salvarsan should be provided gratuitously, under proper safeguards, to private practitioners for use among the poorer patients. Sir Malcolm Morris believes that under present conditions compulsory notification and treatment are impracticable. Sir William Osler would welcome notification. The conclusion of the royal commission was against this measure. "I myself am strongly in favor of the adoption of compulsory notification," said Colonel Goodwin, "and believe that with the advance of education and the recognition of the gravity of the matter, this will be enacted. The commission emphatically recommends the prohibition of all advertisements of remedies for venereal diseases, and favors the legal prohibition of treatment by unqualified persons. Some difficulty obtains, however, in securing such a law at present. I believe," he continued, "that unauthorized treatment of these diseases should constitute a penal offense. I also think that it should be the duty of a medical man to acquaint the parents of any girl who contemplates marriage with a man whom he is treating for venereal disease, and that such communication should be recognized as privileged. The wilful communication of venereal disease should, in my opinion, constitute a legal crime. While the proof of knowledge might be difficult, the measure would tend to the good of the community. This present world-wide war, apparently productive of nothing but evil, is teaching us to regard life and death as less important than the future welfare of mankind; and if such matters as adequate control of venereal diseases, world-wide prohibition of alcohol, and an increasing, instead of a decreasing, birth

rate result, it may possibly be found that, terrible as it is, it was not without some good results."

The Preventive Side of Social Disease

The next speaker, Mr. George W. Braden, of the Central Y. M. C. A. of Philadelphia, stated that the moral standards maintained in a military camp greatly affect the venereal disease ratio. A study of the Mexican border situation made by Mr. Max Exner of the Y. M. C. A. International Committee and a member of the Fosdick Commission on Training Camp Activities states that when men were kept busy with wholesome games and amusements, proper educational service was rendered and temptation removed as far as possible in nearby towns, the number of men applying for prophylactic treatment was very low. Mr. Braden cited figures from several of the camps under varying conditions which showed definitely that the incidence of application for prophylactic treatment was far less when proper recreation was provided.

Social Diseases in the Army as Affected by the Soldiers' Environment

Major William F. Snow, M. R. C., emphasized the practical details which the Army is carrying out in the prevention of venereal diseases. "As a medical profession we have not quite become convinced," he said, "that the venereal diseases are amenable to the same methods of attack that we have applied to the other communicable diseases. We are, however, on the eve of carrying this application into effect. In venereal disease we have a problem of the human carrier, and therein lies our difficulty because the carriers spread the disease through the development of habits opposed to the moral standards of the community. The circumstances connected with the control of these individuals is such that we either have to legalize their immorality or interfere with the liberty of large numbers of persons. Controlled prostitution has been found inadequate in the epidemiology of venereal diseases, to say nothing of the opposition of the public to this method. It has taken this war with the ten or fifteen years of effort and education to bring about a crystallization of public opinion to try other methods of controlling venereal diseases." Education and recreation, he believes, are the chief steps. The control of alcohol has been put forward by almost all persons interested in this problem as one of the biggest factors in the control of prostitution and therefore in the control of these diseases. The government combines these agencies in two major groups, the group dealing with education, recreation and entertainment, and the group dealing with police power with control of alcohol and the repression of prostitution. Congress has given the President and the secretary of war authority over zones around all our military camps. The secretary of war has created the Commission on Training Camp Activities, which is developing a network over this country of voluntary cooperation to do whatever can be done along these lines of effort. So far as the Army is concerned, the various commanders are finding groups in the communities who are interested in the stimulation of this effort. There will be some soldiers, however, who will expose themselves, and stations are being established for treatment, and the Army is making a special effort to render the treatment station an educational matter. Some will fail to receive treatment in time, and will develop the disease. The genito-urinary men attached to the Surgeon-General's staff will make every effort to obtain the social facts from the soldiers to make it possible to trace the carriers. In Canada there has been much encouragement felt by the cooperation of the soldiers in tracing the carriers in civil life. In order to combine all these efforts, the Surgeon-General has created under Colonel Russell a department that will devote its efforts primarily to this preventive phase of the venereal diseases. Inside the camp, certain officials will be working with the regimental surgeons in studying the cases that develop. Sergeants who are especially trained will work with the officials in ascertaining the facts without embarrassing the soldiers or making the matter appear to be a disciplinary measure. In order that such information may be used wisely, a series of officials are being appointed who will work in the extracantonment areas whose chief business will be to know the attitude of the community toward the problem, to know the health official and the other forces that may be counted on to carry through any effort to find carriers in the civil community.

Social Diseases in the Army

Col. Frederick F. Russell, M. C., U. S. Army, chief of the division devoted to laboratory work, said that syphilis and gonorrhea can now be placed with other infectious diseases and not classed merely as moral and social problems. The Army surgeon in the United States has absolute control of the soldier inside the reservation. In time the new citizen soldier will learn that he is a part of the great world machine, and his ideal will be to keep himself in the pink of condition. We have a large number among our recruits who immediately become patients. In the old days most army posts were surrounded with evil places over which the Army had no control. At present the law gives us control of a zone surrounding each camp where the commanding officer has almost complete police power. We shall have to contend with more venereal disease in the Regular Army this winter than ever before. The third week of the draft Army showed an astonishing increase in the number of cases of venereal disease. Whether this means that these diseases are much more common among young men of military age in the civil population than we ever supposed, I do not know. Certain it is, however, that we have almost 400 per thousand, whereas our highest rate in the last twenty years in the Army has been 162. Treatment begins from the first day the men begin to assemble, and we now have hospitals full of draft men with venereal disease which they contracted before joining. The most interesting point is not of recovery but of how many days it will be before the patient is returned to his military duty. In their order, the commonest diseases in the service are venereal diseases, tonsillitis, influenza, bronchitis, diarrhea and enteritis. The Surgeon-General has had prepared a small manual on the present day methods of diagnosis and treatment of venereal diseases. We hope by means of this manual and the service of qualified specialists as consultants to standardize and develop this field of medicine, and bring home to every physician the great value of modern scientific treatment. We shall institute early treatment of venereal infection by all the so-called prophylactic methods, if possible within a few hours of exposure. We shall make frequent inspection of the troops to discover concealed cases. We shall penalize a man who develops venereal disease by taking away his pay and his liberty until he is cured. If he develops venereal disease and does not avail himself of the facilities of treatment, he will in addition be courtmartialed, and if found guilty he will be placed in confinement at hard labor. If in spite of these requirements he develops disease, he will be sent to the hospital, put to bed, and be given a course of intensive treatment until he is no longer a source of contagion to others and is well on the road to recovery. Without the cooperation of the civil practitioner, the help of the social worker and of the public as represented by the civil and state authorities, the Army surgeon will not be able to accomplish more than has been done in the past. Success depends on the earnest support of the entire medical profession of the country.

General Discussion

Dr. Edward Martin described plans for the cooperation of the civil medical profession of Pennsylvania. "We mean to have our health officials treat the man with gonorrhea and syphilis, or both, who cannot be kept under medical control, with as little respect as to his rights as they would treat one suffering from smallpox. Our state committee will recommend to the legislature that places be provided for the treatment of such patients. There is no reason why hospitals receiving state aid should not take these patients within their doors and keep them until they are no longer sources of danger, except in institutions in which girl babies are cared for. Here gonorrhea should be excluded. In every county of each state there is a subcommittee of the Council of National Defense, and before the war is over we hope to have a law by which these diseases under national restriction must be reported, and by which a person conveying them knowingly or otherwise may be liable for criminal prosecution or damages.

Major E. H. Siter stated that when the war is over and the men in the Army have seen the efficient treatment there instituted and have known the ravages made in the ranks, the great etiologic factor will, he believed, be corrected. It is not the professional prostitute who does the damage, but the casual prostitute hanging about the cantonment. The disease must be treated intensively. This cannot be done except in a hospital.

Dr. Jay F. Schamberg mentioned the recent organization at Cincinnati of the American Society for the Control of Syphilis. The membership is composed of specialists who will develop the activities along medical, legislative and educational lines, cooperating so far as possible with the American Society of Social Hygiene. "Until recently, a dose of salvarsan has cost $4.50 an ampule, which prohibits its adequate

use with all the indigent sick. It has been impossible for those making salvarsan or its equivalent in this country to supply the drug directly to the profession because of the patent laws. The Adamson bill, however, which has just passed House and Senate, authorizes the President to license American citizens to prepare and market products patented by alien enemies, and provides for the payment of 5 per cent. of the gross receipts to be deposited in the United States Treasury until the end of the war. The Dermatological Laboratories have made application for license to distribute arsenobenzol. Over 125,000 doses of this drug have been used already in the United States. It is our purpose progressively to lower its price, that it may be freely available for the indigent sick. We propose as soon as licensed to place arsenobenzol on the market at $1.50 to physicians, and to hospitals in larger sized ampules at such a price that an individual dose may be administered for about 80 cents. The adequate use of salvarsan on the ambulatory dispensary patients is of vital importance in the stamping out of contagious syphilis."

Dr. H. M. Christian believed that we must protect the man in the Army from the result of his own immorality, for the benefit of the service and his associates. "That which is of vital importance is prophylaxis; and I regret," he said, "that more emphasis was not placed on the prophylactic treatment of men on their return to camp. Statistics tell us that when prophylaxis is carried out as a routine, the percentage of development of venereal disease has been very small. Prophylaxis is not a compromise with evil, as so many regard it. We as physicians have no discussion here of morals; we are interested in the safeguarding—at this of all times—of the health of our Army. It is all very well to give these men instruction and entertainment, but far better to my mind to safeguard them by enforced prophylaxis."

Colonel Goodwin said in closing that he did not think the soldier is more immoral than men of the same class in civil life. We can do an enormous amount to keep him away from the opportunity of getting venereal disease, and the measure which has helped more than anything else in the Army to carry this out is the increased facilities for amusement. In this connection the Y. M. C. A., he believes, is of utmost importance.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA

"War Session"

SECOND EVENING

The second evening session was held in the Gold Room of the Congress Hotel, Tuesday, October 23. The meeting was called to order by the president, Dr. John T. Clark.

Symposium: Sanitation and Sepsis

THE WORK OF THE ARMY SURGEON

Surgeon-General Gorgas introduced the general subject of the work of the military surgeon. He said his personal experience in military surgery was nil; he had been in service for forty years, but during that time we had been involved only in the Spanish-American War, and since that time military surgery had been practically born over. This war has demonstrated the fact that we shall have to add enormously to the procedures that will have to be adopted before victory comes. The whole situation revolves on the question of sepsis. The endeavor of the military surgeon should be to get at the wound as quickly as possible and render it free from infection as soon as he is able. The principal rôle of the administrator will be to get the men at the earliest practicable time, and with this object in view we should have our hospitals as near the front line as possible. All our plans will be bent toward this end.

THE WORK OF THE NAVY SURGEON

Surgeon-General Braisted said it was impossible in the time allotted him to give a compresensive idea of what had been done, or of the problems and the enormity of the task before us. He called attention to the enormous increase in the number of enlisted men in all departments of the Navy, and to the fact that the medical department must also look out for all the men engaged in the construction work for the Navy, which made the total between a fourth and a half million people for whom the Navy was responsible. There were formerly 394 medical men in the Navy; there are now 828 in the regular service, this being the full authorized strength of the corps. They were obtained through a campaign which was instituted in the Class A men of the large medical schools of the country, and are a credit to every one. The Navy has twelve hospital units organized under and in conjunction with the Red Cross, and five small naval stations, the majority of which are rendering service. Four excellent hospital training schools are maintained by the Navy, and there are sometimes 100 men in training. Two ships are being transformed into hospital ships, and one is being built from the keel up as a hospital ship that is of a type never before contemplated in the history of the world. The Navy is well equipped in every way and able to meet every demand that may be made.

IN THE TRAINING CAMPS

Col. E. L. Munson, M. C., U. S. Army, in charge of the medical officers' training camps, told of these splendid camps that have been established for medical officers. There were approximately 500 medical men at the outbreak of the war who were capable of playing the medical war game as it should be played. The law authorized seven medical men per thousand, but experience abroad has shown that ten per thousand is better. The corps has been increased until now the doctors and dental surgeons alone outnumber the whole Army of the United States when it went to war with Spain. The Surgeon-General was confronted with the problem of training these men, and at once secured authority to establish training camps for this purpose. There are now three of these camps, besides one for negro officers and one for the Ambulance Corps. The training is at first physical, for the average doctor who comes in is in need of vigorous training to fit him for the tasks ahead. He is trained as a soldier until he can go as far as the rest in every way, and stand a full days' work beside. He must be taught how to do everything necessary, for he will have to tell others how to do it when actually in service.

Col. Munson's talk was illustrated by lantern slides and moving pictures showing the life in the camps.

MILITARY LABORATORIES

Col. F. F. Russell, M. C., U. S. Army, director of laboratory activities, spoke of the necessity of having well equipped laboratories that could be operated on the same principles that are now carried out only in the larger cities. New laboratories are now to be established at all cantonments and in general hospitals at the posts throughout the country. Those at the cantonments must be able to carry on the work of a community of from 20,000 to 50,000 people. The difficulty in securing supplies and apparatus is now being met; the principal articles have been delivered at all cantonments, and additional supplies will be furnished as rapidly as possible. A great many women laboratory workers have offered their services, and will be used as civil service employees as the need arises. Two classes of work will be done: clinical pathology for diagnosis in connection with the camp hospitals, and the routine examination for typhoid carriers, hookworm carriers and infectious diseases. The laboratories will also prepare all the vaccines and serums necessary for all the work done in the cantonments, and hope to do all the work that is now being done in the best institutions in a city. Much work has already been done in the new diseases of the war—trench fever, trench jaundice and gas gangrene. Many research institutions have offered their services, and all who have worked under General Gorgas have complete confidence in the future of the Medical Corps under his charge.

Gunshot Wounds and Their Treatment

Sir Berkeley Moynihan, Leeds, England, was sure that surgeons who were called on at the outbreak of this war to treat gunshot wounds in men coming over from France were never likely to forget their experience. They had occasionally encountered cases of suppuration, but never in the experience of medical men in our generation had cases of virulent infection like these been seen. The surgeons were scoffed at and told that they had never learned the lessons that Lister has spent his life in teaching, or, having learned them, had made haste to forget them. On reviewing Lister's books he found that he clearly distinguished in every one of his writings between the prophylactic work of antiseptics and their therapeutic values. The original idea of the antiseptic system was the exclusion of all microbes from the wounds, and the more or less successful attempt to restore wounds already septic to the aseptic state, so it was no just tribute that was brought against the surgeon when he was told that Lister had lived in vain and that aseptic surgery had fallen grievously to the ground.

Sir Berkeley described the way in which a German rifle bullet travels, and the different types of wounds made by it. The soldiers claim that the enemy uses an explosive bullet; and he said that while he knew the kaiser could use every iniquity that could possibly pay, and every kind of infamy if it pays at the moment to do it, he does not use the explosive bullet because it lacks the accuracy of aim that is present in the one he does use. One effect of the utmost importance produced by this bullet as it charges its way heavily and clumsily through the tissues, with the terrific momentum of 1,000 meters per second, is that it not only tears apart the tissues but also kills them by means of its terrific velocity. It also drives into the tissues everything with which it comes in contact; and if a bone is encountered, every tiny fragment becomes a projectile in itself and is driven into the tissues all around. These bullets have been shown to penetrate not only the body of one man but also the bodies of two, or even three, in succession. It is interesting to know that you may take the parts of one man out of the wound of another man through whom the bullet has passed. A part of a pocketbook of one man may be driven into the side of another, and the golden sovereigns in the hip pocket of one man may be removed from the buttock of the man who stood behind him. During the last two years, wounds produced by high explosives and shrapnel have increased in number. A gunshot wound depends for its qualities not only on the missile which is used but also on the man whom it meets. "It is impossible to exaggerate the intimacy of the contact between the soldier and the soil on which he is fighting." Flanders is probably the most highly cultivated region in all of France, the soil having been fertilized and refertilized for many years, with the result that the mud is of a particular bacterial malignancy. All the kinds of infection that occur in gunshot wounds are those which come from the fecal bacteria found in this soil, the streptococcus and bacillus of Welch being the most frequent. The men receiving these gunshot wounds are weary almost beyond endurance, are suffering shock, and all the circumstances both local and constitutional are in favor of a rapidly spreading infection. From a surgical point of view it is evident that there should be brought together at the earliest possible moment after the infliction of the wound the wounded man and the best surgical help that is available. This means that we want the best surgeons who are young at the most advanced point in the service to which it is safe to send them, and where they can have all the material surroundings which make for safety in surgery. The one thought should be to obtain complete closure of the wound at the earliest possible moment, either by primary or by secondary closure. Primary closure consists in excising the wound as completely as possible and in one piece, in order to avoid the reinfection of the new wound that the operator is making. This is capable of being carried out in a very large proportion of cases if the surgeons have the courage to do it, probably in 80 or 90 per cent. of the suitable cases. The principles and ideals for which to strive in badly infected wounds are to bring in larger quantities and on a rising tide the swarm of leukocytes into the wound, and perhaps to increase their activity by vaccine therapy, or to make use of the increased antitryptic power of the blood in very grave infection; and there must be complete immobilization, to prevent movements which carry poisonous bacteria into the blood.

Regarding antiseptics, Sir Berkeley said that from a military point of view the Carrel-Dakin method was an extremely difficult one to practice. Many people think a large part of the success of this method is due to the fact that the patients are received early, are placed at once under this careful, rigid technic, and are retained for long periods. The great fault of the Carrel method is that if it breaks down it fails lamentably. It has never taken hold in a wide area of the French Army, and in England has rarely been accepted as the method of choice. The Carrel method has, in his judgment—"speaking with the utmost respect of the work that Carrel has done for many years past"—achieved its greatest successes in cases in which it need never have been used. A second method was introduced by Rutherford Morrison, and has been used by him for two years. It consists in the free, mechanical exposure of all parts of the wound, the scraping away of all granulation tissue, and the removal of all dead and seriously injured portions and all fragments of bone; then the wound is dried with gauze, and "a very thin smear of what Sir Rutherford calls by the perfectly hideous name of 'bipp' is applied to all the surfaces." Bipp consists of bismuth, one part; iodoform, two parts, and petrolatum, one part. The wound is then stitched up without drainage, immobilized, and left for ten days. These patients do amazingly well; but Sir Berkeley has found by much experience that they do equally well when he "bipps them without bipp." He has since persuaded Morrison to try treating some of his cases without bipp, and had his authority to say that they had done just as well without it as any he had ever treated with it. "With a patient sent back from France with a compound fracture, with suppuration beyond anything ever seen in civil life, these cases can be opened up, curetted, the dead bone removed, and in three weeks can be healed completely, the bone united without any antiseptic whatever having been in contact with the wound, either at the time of closure or at any other time." He thought it did not make much difference what was done to the wounds, provided there is a free, mechanical cleansing, and a careful, scrupulous, rigid technic.

In closing, Sir Berkeley said: "The question is still very open. The last thing that any one must do is to imagine that a method for treatment of wounds has finally, by the industry and immense capacity for research, been found either by Carrel or by Morrison or by Browning with his flavine compound, or by any one else. The one certain thing is that if you get your patient early, if you operate ruthlessly, taking away all dead and contaminated tissues, you will find that you can get an early and a perfect healing of that wound by first intention. And if you cannot get that early access to your patient, and see him only when a definite infection is soundly established in all parts of the wound, then again the essential thing is the free, mechanical exposure and cleansing of all parts of the wound; and having done that you may do such other things as you care to try. One method is as good as another, and no method the equal of any; but the two things that have come out from all this exhaustive inquiry and most painstaking care of patients is that the primary essential is freedom of exposure of all parts, thorough cleansing, and from first to last the most absolute immobility that you can impose on any wound of the parts. It is just as important, or more important, to immobilize as firmly and as rigidly as you can a wound of the soft parts of the body as a compound fracture of the bone."

DISCUSSION

Major George W. Crile, in discussing Sir Berkeley's paper, said that he had found practically all of his preconceptions concerning surgery to be wrong. The missiles produced the most extraordinary wounds; and the one that surprised him as much as any was that the supermud acted as a missile in itself. A high explosive shell would dive into the mud and throw the mud with such tremendous velocity that it would actually cause a penetration of the skin; and through that hole a vast amount of mud would be forced, producing a very bad type of wound, and in some instances death. He agreed with Sir Berkeley as to complete wound excision, and had found that the incision must be much larger than he had ever expected to make; but in time one gets to know that when the tissues cut in a certain way one has gone to a point at which there is a good resistance established. He reflected Sir Berkeley's opinion that physiologic resistance is the biggest single factor in the healing of the wound.

As to antiseptics, the Lakeside Unit took with it a complete outfit for carrying out the Carrel-Dakin technic, use it now in their base hospital, and have also thrown teams forward into the front area. Their experience has been practically the same as Sir Berkeley had intimated; if there is plenty of help and if well done, the wounds do beautifully. He had never seen any wounds do better than those in which a typical and perfect Carrel technic has been carried out from beginning to end without a slip. But the moment one is confronted with the problems presented in the front area, it is absolutely impossible to carry out any complicated technic. The period of contamination is the first twelve hours, and after that the wound goes into the period of infection. The patient should be operated on in the period of contamination, before infection begins. When he first heard of "bipp" there were three reasons why he doubted whether it would be good; first, it contained bismuth; second, it contained iodoform, and, third, it contained petrolatum. He was surprised to find that the patients did very well, but it is necessary to use it lightly and then give perfect physiologic rest. Like Sir Berkeley, he had found that they also do well without bipp. He was sure that the ideal antiseptic for war surgery had not been found. He thought it was true that for men who were carefully trained and taken away from all the problems of an ordinary civil existence, the work in the camp and the simple physiologic business of fighting were to the advantage of the men. These men become vigorous, and present an entirely different problem

as to infections than the average civilian. Who would think in civil life of attacking a wound in the knee joint, washing it out with salt solution, and closing it up without drainage? As a matter of fact, 70 per cent. of the wounds so treated get on without any trouble whatever. In large chest wounds of all sorts and descriptions, they open the chest widely, take out foreign bodies and remove the blood, close up the wounds tight without drainage, and nearly all of them heal without any infection. They are not dealing with the same type of physiologic resistance in the well trained, selected individuals who are soldiers as they are accustomed to deal with in the civilian population. Gas gangrene has been practically mastered by learning that it attacks principally the muscles; if they are excised there is practically no spread of the disease. It has now almost disappeared from the acute casualties. In the wounded who lie out in "No Man's Land" for two or five or ten days, it has been found that the wounds that have done best are those that contain maggots. The reason for this is that there is devitalized tissue; the maggot lives on this devitalized tissue, and if it destroys that tissue it does in time what the surgical operation does. He believed it was in the power of General Gorgas to do the greatest task of surgery for our armies if he could carry out his plan to have our hospitals out near the front so that our soldiers can be brought in early, and receive the necessary care at the hands of good surgeons. That would amount to more than all the antiseptics one could muster in all the world.

Dr. Edward Martin, Philadelphia, said they had been advised by one eminent member of the profession to take all the antiseptics and throw them into the sea, and another had advised them to raise a brood of tame maggots to take care of wounds. What Sir Berkeley had done most of them could not do; what they were after was what they could do best for the good of the Army; and the majority still believed that there was a germicide that kills the germ and that was what they were after. They are still searching for the best and least injurious. Now Dakin thinks he has found it, and he has asked Lee to make a trial of his preparation; the results have been very good. They had been taken to the gentlemen of the Army and Navy, and they had detailed Dr. Furness and Dr. Lee to carry on the research. They had selected surgeons with large hospital and industrial plants, and the reports were enthusiastic with the exception of Boston—and that was in its favor. He advised that we await the outcome of these experiments before throwing away all antiseptics and treating every wound with courage and the knife and nothing else.

Dr. E. H. Dunham said that as a result of laboratory investigations it appears that there are three things to know about an antiseptic: the speed of disinfection, the stability of the antiseptic, and the degree of concentration in which that antiseptic can be used. There are three classes of hypochlorids: the Dakin solution, chloramin-T and dichloramin-T. Chloramin-T is soluble in water, and dichloramin-T is not. There is an enormous difference in the speed of disinfection, and that is an important element. The next point was the stability of the disinfection; the chlorid antiseptics are very unstable. He explained the action of the chlorins, and in closing said that if one could have a rapidly acting antiseptic that was not so unstable that it would keep up its action for a long time, it would be a real help.

Dr. W. Estell Lee, Philadelphia, reported 7,228 cases in which dichloramin-T has been used, and said it had also been used in many war wounds in France. From this clinical experience the conclusions offered in the first report had developed into firm convictions. Their experience shows that the chlorin preparations have proved superior to all other antiseptic preparations. However, if used for any length of time, they produced marked irritation of the skin; various modifications, therefore, were tried, and the best had been that suggested by Dakin. The original solution was very unstable, and had to be prepared almost daily. It contained such a small germicidal agent that it was necessary to have it at all times in contact with the wound. It was necessary frequently to renew the solution every two hours day and night. Most of these faults have been overcome by the development of a beautiful and complicated technic which consumes a great deal of time on the part of the surgeon and nurse, and an unnecessary expense for both apparatus and dressing material. They made a search for a new antiseptic, and Dr. Dakin had asked them to try out dichloramin-T. By the use of oil as a menstruum, a large amount was brought into contact with the infection in such a manner that it was slowly infused into the tissues; and during this period its action is in all respects equal to that of the chloramin compound. This eliminated at the start the necessity for the complicated Carrel technic. The results of these clinical tests have been the realization of Dakin's hopes.

Dr. Lee gave the results obtained in a vast number of wounds of various sorts, and showed lantern slides demonstrating the method of applying the solution and the dressings, emphasizing the economy in dressings required. By this means they are able to treat eighty patients in an hour at their clinic, and have handled 100 in an hour on certain occasions. They use less than one fourth of the gauze formerly used, less than one tenth of the bandages, and have cut down the time of healing from fourteen days to ten.

Dr. William O'Neill Sherman spoke in defense of the Carrel method, and said if the impression was allowed to prevail that antiseptics have no use there is no use in going to France. We could simply let them put on a bandage over there and send the boys home. He had spent five months in France and England, and every man in France and England was infected. Carrel's hospital was 8 miles back from the lines, but not a man was infected who had received this treatment, and there was not a drop of pus. He spoke of the work of Chutro, who had 300 beds in Paris and was using this method with good results. Dr. Sherman exhibited lantern slides showing wounds of various sorts at different stages under treatment by the Carrel method.

Evening Session, October 24

This session included the presidential address on "The Use of Radium in Gynecology," by Dr. John G. Clark, Philadelphia, and a symposium on "Military Surgery and the Specialties." The heads of the various special departments organized by the Surgeon-General's Office outlined the work that these departments expect to undertake, and described what has already been done.

Evening Session, October 25

Surgery of the Spinal Cord

Dr. Charles M. Frazier of Philadelphia read a paper on surgery of the spinal cord, dealing largely with the neurologic problems encountered. In discussing the paper, Dr. Allen B. Kanavel, Chicago, said he was well acquainted with the excellent course of instruction being given to the neurologic service, and was certain that before the war had begun for us we shall have a corps of men trained to do this work to the credit of the entire profession of America. He thought he could best discuss the subject by drawing attention to a few cases in which he has been permitted to perform a laminectomy. He showed lantern slides of several cases, and said he was convinced that the best time to operate was after the patient has recovered from shock.

Surgery of the Stomach

Major William J. Mayo, M. R. C., U. S. Army, Rochester, Minn., stated that 30 per cent. of all cancers of civilized man are in the stomach, and that this condition is uncommon in primitive man and in the lower animals, although there is no mechanical and secretory difference in the construction of the stomach. He believed that chronic gastric ulcer is not often cured medically, and is not seldom a source of cancer. He called attention to heat as a source of irritation, and was of the opinion that cancer occurs more frequently in man than in woman because man is in the habit of taking his food and beverages hotter than the average woman does. Woman sits at the foot of the table and pours the tea and coffee, serving the men of the household first and drinking hers after it has cooled somewhat. In the Chinese the same rule holds true with the rice that is eaten, for the women eat at the second table.

In closing, he said that food and drink should not be taken into the stomach hotter than can be borne comfortably in the mouth. The mouth and the throat are protected by sensitive nerves, but the stomach is not. Early diagnosis of cancer depends on the roentgen examination. The antecolonic end to side anastomosis between the stomach and jejunum greatly accelerates closure. The results of operation for cancer of the stomach are now fairly good and are improving; 38.4 per cent. are cured.

DISCUSSION

Dr. A. J. Ochsner, Chicago, said we were impressed at once with the fact that a condition to which every one is exposed is an important condition in the production of this most fatal of all diseases. We have known for a long time that there is no superficial cancer anywhere which occurs

without preliminary irritation, and that this preliminary irritation gives rise to disturbed circulation. He was of the opinion that human beings are afflicted with cancer because they are manure eaters. We fertilize our soil, and in that way take unclean food into the stomach which produces an irritation. Cancer occurs most frequently at the point at which there is interference with the circulation, and he was convinced that this was a large factor in its production; and that smoker's cancer occurred most often on the lower lip because the circulation was interfered with owing to the weight of the pipe. Although we have not yet found the organism that causes it, we have found the condition that makes it possible for this agent to live successfully under these conditions. He thought we should endeavor to avoid all irritation, stop boiling our insides, and at the same time insist on having clean food to put inside the alimentary canal. He was sure that when that was done there would be an enormous decrease in the amount of cancer.

Dr. L. L. McArthur, Chicago, agreed with Dr. Mayo that irritation was a predisposing cause to cancer, and was convinced that irritation made a doorway through which the infective element finally gains access. This atrium he has called attention to in various ways. He was sufficiently neutral to call Dr. Mayo's attention to the fact that the male stomach in Germany has the same frequency of infection as the female, and yet in Germany the man sits at the foot of the table and pours the tea and has his cold. Cancer of the skin has been shown to be due to the yeast plant, and has been sloughed off from the great group known as cancer proper. He thought the great lesson to be learned was that the operation formerly considered as formidable is being lessened, and that the extent of the operation continually grows. When hearing Dr. Mayo's remarkable statistics that 38.4 per cent. were cured in the understanding of the term that for three years they have lived and were free from evidence of other disease, we are not to deduce the fact that this represents the mortality of the stomach when operated on, but only as the mortality which followed selected cases—not cases selected to improve the statistics to be presented to a medical society, but selected cases in which operation can be performed with reasonable hope of success. The diagnosis is very difficult in many cases even after the abdomen is opened, and when the diagnosis is made, even then the prognosis cannot be accurately prognosticated.

He called attention to an operation for putting the stomach at rest after operation, especially in cases of cancer of the stomach complicated with gallstones, by inserting a tube into the gallbladder and bringing it outside the abdomen. In this way the bile is prevented from getting into the bladder, salt solution can be introduced into the duodenum, the intestines can be flooded, and the patient can be made much more comfortable.

War Surgery of the Lungs and Pleura

Sir Berkeley Moynihan, Leeds, England, read an exceedingly interesting paper on this subject, recounting the experience of himself and others, from which he drew the following conclusions:

1. The approximate mortality from gunshot wounds of the chest, after the patients get into the hands of the doctors, is 20 per cent.

2. Causes of death are hemorrhage, as a rule within from eighteen to forty-eight hours, sepsis beginning after the third or fourth day.

3. Local conditions in the wounds of the chest wall and lung are in all respects similar to those in wounds elsewhere; the missiles are the same, destructive elements the same, and infective organisms the same.

4. The lung tissue is more resistant to attack than many other tissues. The opening of the cavity and the exposure of the contents add a danger of the most threatening character.

5. The chief essential in the treatment of all penetrating wounds of the chest is rest.

6. In clean wounds of the chest, rest together with dressing of the wounds of entrance and exit will lead to recovery in the great majority of cases.

7. In cases of open thorax, the earliest and most complete effort must be made to secure closure of the wound.

8. In grave cases of hemorrhage when blood escapes from the wound, the wound in the lung must be treated by suture or by plugging of the cavity from which the blood escapes.

9. When the blood is sterile and remains so, no operative procedure is necessary.

10. In cases of hemothorax in which the blood remains sterile, aspiration after the tenth day certainly hastens convalescence and permits expansion of the lung and free movements.

11. In cases of hemothorax, whether the amount of blood is small or large, when infection takes place operation is necessary. Early operation, whether the Carrel or the Morrison method is adopted, saves many weeks of convalescence and permits functional recovery.

12. Small rifle bullets or other projectiles in the lung often cause no symptoms, and may be safely removed.

13. Large foreign bodies may cause symptoms, and in such cases they should be removed. Pieces of metal so removed, whatever the period of time has elapsed since their introduction into the wound may be, are almost always found to be infected.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Atlanta, Ga., Medical Supply Depot, for duty as assistant, Capt. ROBERT E. HALE, Bellamy.

To Camp Dix, Wrightstown, N. J., for duty from Fort Oglethorpe, Lieuts. MOSES E. SHERER, Childersburg; MANNIE A. FORT, Grand Bay; FRANK H. McCONNICO, Montgomery; JOHN F. JENKINS, GILMER H. MOORE, Opelika; JULIUS F. PEAVY, JR., Robertsdale; JAMES W. BEARD, Troy; MAXWELL MOODY, Tuscaloosa; BRYANT B. EDWARDS, Union Springs.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieuts. WILLIAM C. DABNEY, Birmingham; FRANK W. YOUNG, Hartford.

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. JULIAN K. LEGARE, Forkland.

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. WILLIAM E. SHERMAN, Albertville.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. ANDREW L. GLAZE, JR., Athens; CHARLES W. BRASFIELD, Linden; JAMES P. VANSANT, Piedmont; DANIEL W. WARD, Tuscaloosa.

To Camp Pike, Little Rock, Ark., for duty from Fort Oglethorpe, Lieuts. SOLON W. WRIGHT, Bessemer; ORLANDO V. LANGLEY, Loachapoaka; CHARLES D. MASON, Scottsboro; JAMES H. SOMERVILLE, JR., Tuscaloosa.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieuts. BEAMAN S. COOLEY, Boaz; WILLIAM A. SEWEL, Center; HORACE VAN DE VOORT, Gastonburg; WALTER E. ALLEN, Ward.

To Camp Wheeler, Macon, Ga., and report to commanding officer of the base hospital for temporary duty, Lieut. EDWARD C. HAGLER, Northport.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Capt. WILLIAM H. OATES, Mobile; Lieut. AUSTIN F. J. BOYD, Emelle.

To Fort Oglethorpe, for instruction, Lieut. WILLIAM M. CAFFEE, Edgewater.

Arizona

To Fort Oglethorpe, for instruction, from School of Military Roentgenology, Los Angeles, Capt. WILLIAM H. SARGENT, Phoenix.

Arkansas

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. MORGAN C. BERRY, Donaldson; ROBERT E. WEAVER, Hope.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. IRA W. ELLIS, Monette.

To Camp Grant, Rockford, Ill., for duty in the division of ophthalmology, section of surgery of the head, Capt. JOHN H. HARVEY, Waldron.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. JOHN B. WELLS, Scott.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieut. EDWARD R. COTHAM, Monticello.

To Rockefeller Institute, New York, N. Y., for a course of instruction in laboratory work, from Fort Oglethorpe, Lieut. JOHN C. SIMPSON, Hamburg.

California

To Army Medical School, Washington, D. C., Lieut. CLYDE E. SHEDD, San Francisco.

To Camp Greene, Charlotte, N. C., base hospital for temporary duty, Capt. GUSTAV J. BERGENER, San Francisco.

To Camp Kearny, Linda Vista, Calif., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. OSCAR O. YOUNG, Garden Grove.

To Camp Lee, Petersburg, Va., for duty in his specialty, Major JAMES R. MOORE, Los Angeles.

To Fort Bayard, N. M., for duty, Lieut. ROBERT C. KIRKWOOD, Alta.

To Fort Oglethorpe for instruction, Capt. THOMAS W. O'REILLY, Los Angeles; Lieut. ANDREW B. WESSELS, San Diego.

To Letterman General Hospital, San Francisco, Calif., for duty in his specialty, Capt. FREDERICK E. ALLEN, Hayward.

To Los Angeles, Calif., for a course of instruction in military roentgenology, Lieut. ORRIN S. COOK, San Francisco.

To New York, N. Y., for orthopedic instruction, from Army Medical School, Washington, D. C., Lieut. JOSEPH R. JONES, Yreka.

To report by telegraph to the commanding general, Western Department, for assignment to duty, Capt. HENRY E. MORRISON, Dixon; Lieut. LOUIS A. FRARY, Oakland.

To the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Kearny, Lieut. HARRY F. WORLEY, San Diego.

Colorado

To Honolulu, Hawaii, Dept. Hospital for duty, from Schofield Barracks, Lieut. RAY L. DRINKWATER, Denver.

Connecticut

To Camp Cody, Deming, N. M., for duty in connection with orthopedic work, Capt. JAMES C. WILSON, Hartford.

To Camp Devens, Ayer, Mass., for temporary duty, Capt. FRANK P. TODD, Danielson; for duty, from Fort Benjamin Harrison, Lieut. ULRIE PLANTE, Hartford.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. FRANCIS J. CARROLL, Bridgeport.

To Fort Oglethorpe, for instruction, Capt. JAMES L. MORIARITY, Waterbury.

District of Columbia

To Camp Dix, Wrightstown, N. J., for duty from Fort Oglethorpe, Lieuts. CHARLES BELL, Washington, D. C., WILLIAM O. WETMORE, Washington, D. C.

To Camp Sevier, Greenville, S. C., for duty from Fort Oglethorpe, Lieut. GEORGE Y. MacMURPHY, Washington, D. C.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieuts. HOWARD W. BARKER, Washington, D. C.; HARRY M. PRICE, Washington, D. C.

To Philadelphia, for a course of instruction in orthopedic surgery, Lieut. JOEL A. TILTON, Washington, D. C.

To Washington, D. C., and report to the Surgeon-General of the Army for duty in his office in connection with the division of brain surgery, section of surgery of the head, Lieut. HARRY H. KERR, Washington, D. C.

Florida

To Camp Dix, Wrightstown, N. J., for duty from Fort Oglethorpe, Lieuts. JOHN M. WHITFIELD, Malone; HAROLD M. BEARDAL, Orlando; FRANK P. HIXON, Pensacola; DREW R. HANDLEY, Raidford; EARLE H. McRAE, Tampa.

To Camp Greene, Charlotte, N. C., for temporary duty, from Fort Oglethorpe, Lieut. GASTON DAY, Jacksonville.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. DWIGHT G. RIVERS, Lake City; BALDWIN S. STUTTS, Pt. St. Joe.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. HARRY C. GALEY, Key West; DANIEL B. WILLIAMS, South Jacksonville.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. CHARLTON C. WHITTLE, Nocatee.

To Camp Upton, Yaphank, L. I., for duty from Fort Oglethorpe, Lieuts. JOHN D. GRIFFIN, Lakeland; RICHARD LEFFERS, Lakeland.

To Camp Wheeler, Macon, Ga., for duty, Lieut. NECY L. GACHET, Century.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieut. ARCHIE C. WATSON, Live Oak.

To Linda Vista, Camp Kearny, Calif., for temporary duty, from Camp Cody, Deming, N. M., Capt. RAYMOND B. McLAWS, Tampa.

To Mineola, L. I., Hazelhurst Field, for duty with the 201st Aero Squadron, Lieut. JAMES L. PENNINGTON, Fountain.

Honorably discharged from the Medical Reserve Corps of the Army on account of being physically disqualified for active service, Lieut. DANIEL M. ADAMS, Panama City.

Georgia

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieuts. STEPHEN T. BROWN, Atlanta; JAMES H. BUTLER, Augusta, Ga.; WHITFIELD W. CROOK, Cuthbert; LOWNDES W. SHAW, Savannah.

To Camp Lee, Petersburg, Va., for duty from Fort Oglethorpe, Lieuts. LESLIE L. BLAIN, Marietta; HUGH W. WADE, Quitman.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. A. NATHAN DYKES, Columbus; JOHN F. BURKHALTER, Morven; HARRY C. WILLIS, Rome.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieuts. DeLAMAR TURNER, Milledgeville; BURTON P. BRADLEY, Rome.

To Camp Wheeler, Macon, Ga., for temporary duty, from Fort Oglethorpe, Lieut. CYRUS K. SHARP, Arlington.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieut. JAMES T. CALLOWAY, Atlanta.

To Mineola, L. I., Hazelhurst Field, for duty with the 200th Aero Squadron, relieved from present duties at this Field, Lieut. THOMAS E. BLACKBURN, Swainsboro.

To Philadelphia, for orthopedic instruction, from Fort Oglethorpe, Lieut. EVERARD A. WILCOX, Augusta.

To Rockefeller Institute, for a course of instruction, from Fort Oglethorpe, and when course is completed to return to his proper station, Capt. GEORGE A. TRAYLOR, Augusta.

To his home and return to the inactive list of the Medical Reserve Corps of the Army, on account of being physically disqualified for active duty, Lieut. JOHN W. BRADLEY, Woodstock.

Idaho

To Fort Riley, for duty, Lieut. DONALD S. NUMBERS, Parma.

Illinois

To Army Medical School, for a course of instruction, Lieuts. HENRY A. RASMUSSEN, Chicago; JOE H. ST. JOHN, Chicago.

To Camp Devens, Ayer, Mass., for duty with the surveying and printing company, from Fort Benjamin Harrison, Lieuts. FRANCIS W. McNAMARA, Chicago; EDGAR A. SMITH, Chicago.

To Camp Doniphan, Fort Sill, Okla., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. EDWARD G. SEPPLE, Chicago.

To Camp Funston, Fort Riley, for temporary duty, from Medical Officers Training Camp, Lieut. JAMES S. CLELAND, Swanwick.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieut. WALTER D. MURFIN, Vernon.

To Camp Grant, Rockford, Ill., for duty, Capt. HARRY S. GRADLE, Chicago. For duty in the orthopedic service, Lieut. PHILIP LEWIN, Chicago.

To Camp Jackson, Columbia, S. C., and report to the commanding officer of the base hospital for temporary duty, relieved from present duties at this camp, Lieut. ALFRED STOCKEN, Rock Island.

To Camp Lee, Petersburg, Va., and report to the commanding officer of the base hospital for duty in the venereal disease section. Relieved from his present duties at this camp. Capt. WILLIAM T. WILLIAMSON, Lexington.

To Camp Lewis, American Lake, Wash., for temporary duty, Lieut. HYRUM Y. RICHARDS, Chicago.

To Camp Pike, Little Rock, Ark., for temporary duty in conducting examinations in his specialty, Capt. MAURICE L. GOODKIND, Chicago; for duty from Fort Oglethorpe, Lieut. VINCENT F. KELLER, Chicago.

To Cornell Medical College, New York, N. Y., for instruction in military roentgenology, Lieut. ARTHUR E. ROGERS, Bloomington; Lieut. RUSSELL M. JOHNSON, Chicago.

To Fort Benjamin Harrison, for duty, relieved from duty at the Medical Officers' Training Camp that camp, Lieuts. WILLIAM F. GRAYSON, Granite City; MYRON W. SNELL, Litchfield.

To Kelly Field, South San Antonio, Tex., for duty Fort Riley, Lieuts. SIGURD H. KRAFT, Chicago; ROBERT C. MURPHY, Mt. Greenwood.

To Mineola, L. I., Hazelhurst Field, for duty, from Fort Riley, Lieut. ROLLEN E. HARROD, Avon.

To his home and return to the inactive list of the Medical Reserve Corps on account of being physically disqualified, Lieut. ADRIAN J. DeHAAN, East St. Louis.

Honorably discharged from the Medical Reserve Corps of the Army, Lieut. GEORGE L. SAMUELS, Alton, Lieut. THADDEUS S. PIERZYNSKI, Chicago.

Indiana

To Army Medical Service, for duty in the bacteriologic laboratory, from Rockefeller Institute, Lieut. WEIR M. MILEY, Anderson.

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieuts. CHARLES C. CRAMPTON, Delphi; RAY H. THOMAS, Indianapolis; WILLIAM R. PHILLIPS, Orange.

To Camp Dodge, Des Moines, Ia., for duty in the base hospital laboratory, from Rockefeller Institute, Lieut. ALBERT G. KINBERGER, Galena.

To Camp McClellan, Anniston, Ala., and report to the commanding officer of the base hospital for duty, relieved from present duties at this camp, Lieut. ARTHUR F. WEYERBACKER, Indianapolis.

To Camp Pike, Little Rock, Ark., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieuts. WALTER McBETH, Burnetts Creek; for duty, from Fort Oglethorpe, EDWARD E. EVANS, Gary.

To Camp Taylor, Louisville, Ky., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieut. MILES F. DAUBENHEYER, Butterville.

To Camp Travis, Fort Sam Houston, Tex., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieut. GEORGE L. MARSHALL, Bourbon.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieut. EDWIN W. RODENHEISER, Indianapolis.

To Gettysburg, Pa., Reorganization Camp, for duty from Fort Ontario, N. Y., Lieut. ARVINE E. MOZINGO, Tipton.

Honorably discharged from the Medical Reserve Corps of the Army, Lieut. ELMER D. MADDUX, LaCrosse.

Iowa

To Camp Dodge, Des Moines, Ia., for duty in connection with the division of oto-laryngology, section of surgery of the head, Capt. BENJAMIN G. DYER, Ames.

To Camp Grant, Rockford, Ill., for duty, Lieut. ELMER J. LAMBERT, Ottumwa.

To Camp Meade, Annapolis Junction, Md., for duty in connection with the division of oto-laryngology, section of surgery of the head, Capt. GEORGE B. WOOD, Sioux City.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. CHARLES L. MARSTON, Mason City.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, from Camp Mills, Capt. THOMAS A. BURCHAM, Des Moines; Lieut. WALTER S. CHESTER, Britt.

To Mineola, L. I., Hazelhurst Field, for duty, from Fort Riley, Lieut. MAURICE C. HENNESSY, Council Bluffs.

Kentucky

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. HORACE T. RIVERS, Paducah, Ky.; Lieut. FREDERICK D. CARTWRIGHT, Bowling Green.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. ALBERT C. BOND, Ashland.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. JAMES H. PRITCHETT, Louisville.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Lieut. CHARLES L. VENABLE, Franklin.

To Camp Taylor, Louisville, Ky., for duty as plastic surgeon and consultant oral surgeon, section of surgery of the head, Major R. ALLEN, Hedges; to report to the commanding officer of the base hospital for duty in the surgical service. Relieved from his present duties at this camp, Lieut. JOHN B. RICHARDSON, JR., Louisville.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, for duty, Capt. RICHARD W. OGILVILLE, Princeton.

To Camp Wadsworth, Spartanburg, S. C., for temporary duty from Fort Oglethorpe, Lieut. JOHN GALVIN, Louisville.

Louisiana

To Camp Dix, Wrightstown, N. J., for duty from Fort Oglethorpe, Lieut. LOUIS S. KUSHNER, New Orleans.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieuts. DANIEL O. WILLIS, Leesville; DANIEL W. KELLY, Winnfield.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. HARPER L. CROW, Elmgrove.

To Camp Logan, Houston, Tex., for temporary duty, Lieut. EDWARD B. F. FAGOT, New Orleans.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. DAVID I. HIRSCH, Monroe; ARTHUR G. HEATH, Shreveport.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. CLIFFORD P. RUTLEDGE, Shreveport.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Lieut. CHRISTOPHER L. MENGIS, Norwood.

To Camp Shelby, Hattiesburg, Miss., for temporary duty, Lieut. ROBERT E. WINDHAM, Merryville.

To Camp Sheridan, Montgomery, Ala., for duty in the laboratory of the base hospital, Lieut. JOSEPH R. D'AUNCEY, New Orleans.

To Seattle, Wash., for duty in connection with the standardization of examinations, physical examining unit, Lieut. LOUIS LEVY, New Orleans.

Maine

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieut. ALBION E. FLOYD, Mapleton.

To Camp Gordon, Atlanta, Ga., for duty in the base hospital laboratory, from Rockefeller Institute, Lieut. LEON S. LIPPINCOTT, Brunswick.

Maryland

To Army Medical School, for a course of instruction, Lieut. JOHN C. WOODLAND, Crisfield.

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieut. LESLIE G. TAYLOR, Perryville.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglesthorpe, Lieut. HORACE B. TITLOW, Baltimore.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglesthorpe, Lieuts. DAVID SILBERMAN, Baltimore; GEORGE M. BOYER, Damascus.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. MARTIN J. HANNA, Baltimore.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieuts. ALBERT G. SINGEWALD, Baltimore; CHARLES N. BRANIN, Hagerstown.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. Percy R. Fisher, Denton.

To Camp Sevier, Greenville, S. C., and report to the commanding officer of the base hospital for duty, relieved from present duties at this camp, Lieut. JOSEPH P. EIDSON, Baltimore.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieut. GEORGE H. REINHARDT, Baltimore.

To Rockefeller Institute, for a course of instruction in laboratory work, from Fort Oglethorpe, Lieut. JOHN F. LUTZ, Baltimore.

Honorably discharged from the Medical Reserve Corps on account of being disqualified for active service, Lieut. EDWARD P. SIMPSON, Chance.

Massachusetts

To Camp Devens, Ayer, Mass., for duty in the surgical service from Fort Terry, N. Y., Capt. ISAAC S. F. DODD, Pittsfield; for duty, from Fort Benjamin Harrison, Capt. GEORGE C. PARCHER, Saugus Center; Lieuts. HENRY M. EMMONS, Boston; JOSEPH SIMPSON, Essex; DANIEL J. GENNELLY, Fall River; FRANK H. SMITH, Hadley; for duty in charge of the subsection of brain surgery, section of surgery of the head, HOMER GAGE, Worcester.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieuts. JOHN F. MAHONEY, New Bedford; WALTER A. JILLSON, Westboro.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe for duty, Lieut. JOHN J. O'DONNELL, Boston.

To Camp Wadsworth, Spartanburg, S. C., for duty as assistant to the chief of the medical service in the care of cardiovascular cases, Lieut. HILMAR O. KOEFOD.

To Fort Ontario, New York, for duty with Field Hospital No. 28, from Fort Benjamin Harrison, Lieuts. JAMES K. STODDARD, Boston; NATHANIEL W. FAXON, Stoughton.

To Neurological Institute, New York, for a course of instruction in his specialty, Lieut. JAMES A. GOULD, Westboro.

Mexico

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieut. EZRA A. LINES, Piedros Negros.

To Fort Oglethorpe, for instruction, from school of military roentgenology, Los Angeles, Lieut. WILLIAM B. WATTS, JR., Emplaine.

Michigan

To Army Medical School, for course of instruction, from Kelly Field, San Antonio, Tex., Capt. GORDON F. WILLEY, Kalamazoo.

To Camp Custer, Battle Creek, Mich., for duty, Lieut. EDGAR C. DUNNING, Cassapolis.

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieuts. FREDERICK J. BURT, Goodrich; WILLIAM H. ATTERBURY, Litchfield; IRA A. ABRAHAMSON, Negaunee; JULIUS H. POWERS, Saginaw; HUGH H. ANGLE, Snover; WILLIAM H. GALE, St. John's.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. ARCH S. CHAPMAN, Detroit.

To Camp Lee, Petersburg, Va., for duty, Lieut. GEORGE G. DIXON, Detroit.

To Mineola, L. I., Hazlehurst Field, for duty from Fort Riley, Lieuts. ROBERT S. IDESON, Ann Arbor; CHARLES S. BALLARD, Mason.

To Syracuse, N. Y., Reorganization Camp, for duty, from Fort Ontario, N. Y., Lieuts. GEORGE M. LOCHNER, Adrian; RALPH H. BOOKMYER, Detroit.

To his home and return to the inactive list of the Medical Reserve Corps of the Army, after completion of course at Rockefeller Institute, Lieut. JOHN T. HODGEN, Grand Rapids.

Minnesota

To Fort Oglethorpe, for instruction, Lieut. HAROLD W. STONE, Wayzata.

Mississippi

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. WILLIAM G. BYRD, Isola; CARLOS R. McKEE, Sandhill.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Capt. ROBERT M. DONALD, Hattiesburg; Lieuts. JAMES Q. FOUNTAIN, Bay St. Louis; HARVEY T. CUMING, Gloster; WILLIAM S. CRANFORD, Laurel.

To Camp Jackson, Columbia, S. C., for temporary duty, from Fort Oglethorpe, Lieut. DRYDEN I. WALKER, Vosburg.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. GEORGE H. SPIVEY, Hollandale; JOHN W. BRANDON, Pinckneyville.

To Camp Pike, for duty, from Fort Oglethorpe, Capt. JAMES A. SLACK, Friar Point; Lieut. NORMAN A. McLEOD, Brookhaven.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Lieut. MARCELLUS C. GARNER, Meridian.

To Camp Wadsworth, Spartanburg, S. C., for temporary duty, from Fort Oglethorpe, Lieut. JOHN G. BACKSTROM, Tutwiler.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieuts. JAMES L. PARKES, Carthage; JESSE D. WESTMORELAND, Water Valley.

Honorably discharged from the Medical Reserve Corps of the Army, on account of being physically disqualified for active service, Lieut. HASAC A. WHITE, Kirkville.

Missouri

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. EDGAR K. WELLS, Delring.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieut. REUBEN APPLEBERRY, Leadwood.

To Camp Funston, Fort Riley, for duty as a member of a board for the special examination of the command for tuberculosis, Lieuts. SAMUEL B. HIRSCHBERG, Kansas City; SOLON E. HAYNES, St. Louis; to report to the commanding general of that camp for temporary duty, Lieut. EVERETT R. DEWEESE.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. HENRY C. HAYS, Kansas City.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. WILLIAM J. EZICKSON, Webb City.

To Cornell Medical College, New York, for instruction in military roentgenology, Lieut. DUDLEY E. MACKEY, Clayton.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieut. PAUL M. KRALL, Kansas City.

To Washington University, St. Louis, for duty as instructor, Major VILRAY P. BLAIR, St. Louis.

To the inactive list of the Medical Reserve Corps from Fort Riley, Lieut. CLARENCE O. C. MAX, St. Louis.

Nebraska

To Atlanta, Ga., Dept. Laboratory, for duty, from Rockefeller Institute, Lieut. EDWARD H. McLEAN, Omaha.

To Camp Greene, Charlotte, N. C., for duty as a member of the tuberculosis board, from Camp Wadsworth, Spartanburg, S. C., Lieut. WILLIAM N. ANDERSON, Omaha.

To Camp Pike, Little Rock, Ark., for duty from Fort Oglethorpe, Lieut. OTTO E. LONGACRE, Loup City.

To New York, for orthopedic instruction, Capt. JOHN M. HENCH, Omaha.

New Hampshire

To Camp Lee, Petersburg, Va., for temporary duty, Lieut. JOHN C. ECKHARDT, Sanbornville.

New Jersey

To Camp Bowie, Fort Worth, Tex., for duty in the base hospital laboratory, from Rockefeller Institute, Capt. GEORGE C. ALBEE, South Orange.

To Camp Devens, Ayer, Mass., for duty from Fort Benjamin Harrison, Lieuts. ARTHUR J. ELLIS, Newark; LOUIS M. SUCHOFF, Paterson.

To Camp Dix, Wrightstown, N. Y., for duty, from Fort Oglethorpe, Lieuts. IRVING E. CHARLESWORTH, Bridgeton; ROBERT BUERMANN, Newark; SAMUEL A. VANDEWATER, Oradell; WILLIAM T. HILLIARD, Salem; HENRY J. HARP, Sussex; CHARLES M. GRAY, Vineland.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. CHARLES H. BALL, HOBOKEN.

To Camp Jackson, Columbia, S. C., for temporary duty, from Fort Oglethorpe, Lieut. FRANK H. PINCKNEY, Morristown.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. DAVID BERNER, Atlantic City; MICHAEL VINCIGUERRA, Elizabeth; MAURICE S. AVIDAN, Newark; WILLIAM SATTERER, Newark.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Capt. THOMAS S. McCABE, Newark.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieut. ELTON S. CORSON, Bridgeton; ORVILLE R. HAGEN, Paterson.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. RALPH H. HUNT, East Orange; Lieuts. ARTHUR G. HILLIARD, New Brunswick; EDWARD B. ROGERS, Collingswood.

New York

To Army School, for duty in the bacteriologic laboratory, from Rockefeller Institute, Lieut. Manning C. Field, Brooklyn; for a course of instruction, Lieuts. LEO. E. REIMANN, Buffalo; JOHN A. RANDALL, Staten Island; ALFRED A. SCHWARTZ, New York; JOHN M. VENABLE, New York City.

To Camp Custer, Battle Creek, Mich., for duty in the base hospital laboratory, from Rockefeller Institute, ABRAHAM A. BRILL, New York City.

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieuts. THOMAS F. PATTERSON, Brooklyn; FRANCIS J. TALBOT, Niagara Falls; ROBERT KNIGHT, Seneca Falls; BENJAMIN F. COLEGROVE, Van Etten; JAMES B. FOSTER, Webster; for duty with the general construction companies, CLARENCE H. MACKEY, Lancaster.

To Camp Dix, Wrightstown, N. J., for temporary duty, Capt. MURRAY F. MUDGE, Johnson Creek; BENJAMIN BROD, New York; GEORGE F. HOGAN, Brooklyn.

To Camp Funston, Fort Riley, for duty in charge of the subsection of brain surgery, section of the head, Major MARTIN B. B. TINKER, Ithaca.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. ADAM G. OSBORNE.

To Camp Grant, Rockford, Ill., for duty with the 35th Engineers, from Fort Benjamin Harrison, Lieuts. MINOR McDANIELS, Ithaca; for temporary duty, WILLIAM W. BANER, New York City.

To Camp Jackson, Columbia, S. C., for temporary duty, from Fort Oglethorpe, Lieut. HARRY S. FINCKE, Long Island City.

To Camp Lee, Petersburg, Va., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieuts. FOREST R. MILDREW, Auburn; OLIVER L. STRINGFIELD, JR., Brooklyn.

To Camp McClellan, Anniston, Ala., and report to the commanding officer of the base hospital for duty, relieved from present duties at this camp, Lieut. FREDERICK C. DEVENDORF, Utica.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. HEMAN R. MARVIN, LYON MARTIN, CHARLES A. KRAUSS, Troy; for duty in the base hospital laboratory, from Rockefeller Institute, Lieut. JOHN R. BOOTH, Rochester.

To Camp Mills, Garden City, L. I., for duty as assistant to the division surgeon, from Fort Benjamin Harrison, Major MARION B. McMILLAN.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Capt. GEORGE E. MAURER, New York City; Lieuts. HUBER P. NEWMAN, New York City; JOHN K. NORWOOD, New York City.

To Camp Sevier, Greenville, S. C., and report in person to the commanding general for duty, Lieut. FRANCIS M. SHOCKLEY, Brooklyn.

To Camp Upton, Yaphank, L. I., for duty, Lieut. JOSEPH L. BEILAN, Brooklyn; HARRY FELDMAN, Brooklyn; HECTOR J. McNEILS, Brooklyn; GUSTAF L. NORSTEDT, Brooklyn; MAX ALEXANDER, New York; JOHN C. HUGHES, New York City; JOHN SMITH, Jr., New York City; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reid General Hospital, Takoma Park, D. C., EDWIN F. SAMPSON, New York City; for duty in connection with orthopedic work, BRAINERD H. WHITBECK, New York City.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. DOUGLAS BROWN, New York City; Lieut. JAMES E. CROSSMAN, East Randolph.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, Lieuts. MILTON I. STRAHL, Brooklyn; LOUIS B. COHEN, Jamaica; CHARLES L. McEVEETY, New York City.

To Fort Niagara, for duty in connection with orthopedic work, relieved from his present duties at this camp, Major FREDERICK N. C. JERAULD, Niagara Falls.

To Fort Oglethorpe, for instruction, from Madison Barracks, N. Y., Major HENRY L. K. SHAW, Albany; Lieut. ANTHONY W. M. MARINE, Brooklyn.

To Gettysburg, Pa., Reorganization Camp, for duty, from Fort Ontario, N. Y., Capt. DAYTON C. WIGGIN, Staten Island; Lieut. FRANCIS E. WEATHERBY, New York City.

To New York City, Physical Examining Unit, for duty as a member of the examining board, from Mineola, L. I., Lieuts. FEDOR L. SENGER, Brooklyn; for orthopedic instruction, ANDREW W. MAHONEY, New York City; for orthopedic instruction, from Fort Benjamin Harrison, ISAAC REITZFELD, New York City.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieut. WALTER P. BLISS, New York City.

To United States Army General Hospital, No. 1, New York, for duty, Lieut. LEWIS B. ROBINSON, New York City.

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examinations, Lieut. EDWIN F. SAMPSON, New York City.

To his home and the inactive list of the Medical Reserve Corps, from Camp Mills, L. I., Lieut. HENRY C. THACHER, New York City.

North Carolina

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. LEIGHTON W. HOVIS, Charlotte; JAMES C. GREENE, Greeneville; HENRY E. STARR, Greensboro.

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. JAMES S. MILLIKEN, Buffalo City.

To Camp Lee, Petersburg, Va., for duty from Fort Oglethorpe, Lieuts. LAWRENCE M. FETNER, Charlotte; EUGENE R. HARDIN, Clinton; NICHOLAS B. CANNADY, Lourinburg.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieut. JULIUS G. THOMAS, Greensboro.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Capt. WILLIAM T. CARSTARPHEN, Wake Forest; Lieuts. CHARLES E. McLEAN, Belmont; SANFORD W. THOMPSON, JR., Sanatorium.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Capt. WILLIAM H. CROWELL, Whiteville; Lieuts. JAMES McP. TEMPLETON, Cary; Lieut. THOMAS B. GOLD, Lawndale.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieut. RICHARD B. WHITAKER, Whiteville.

To Camp Wheeler, Macon, Ga., for temporary duty, from Fort Oglethorpe, Lieut. THOMAS ALEXANDER HATHCOCK, Norwood.

To Fort Oglethorpe, for instruction, from school of military roentgenology at Richmond, Va., Lieut. FRANK R. WRENN, Siler City.

To Rockefeller Institute, for a course of instruction in laboratory work, from Fort Oglethorpe, Lieut. HICKMAN RAY, Raleigh.

To the inactive list of the Medical Reserve Corps, Lieut. WILLIAM E. BRACKETT, Caroleen.

To the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, Lieut. ARTHUR D. MORGAN, Scotland Neck.

Ohio

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Capt. JAMES D. PILCHER, Cleveland; Lieuts. ABRAHAM B. GROSSMAN, Cleveland; GEORGE P. TYLER, Ripley; FRANK W. PILLIOD, Toledo.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Benjamin Harrison, Lieut. ARTHUR L. DIPPEL, Cleveland.

To Camp Grant, Rockford, Ill., for duty with the Thirty-Fifth Engineers, from Fort Benjamin Harrison, Lieut. JOHN D. MILLER, Cincinnati.

To Camp Lee, Petersburg, Va., for duty from Fort Oglethorpe, Lieuts. BENJAMIN H. GILLESPIE, Akron; to report to the commanding officer of the base hospital for temporary duty, relieved from his present duties at this camp, EMMETT FAYEN, Cincinnati.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. PERCY B. LONG, Copley.

To Camp Pike, Little Rock, Ark., for duty from Fort Oglethorpe, Lieut. JOHN P. SMITH, Cleveland.

To Camp Sherman, Chillicothe, for temporary duty, Lieuts. FRANK W. HICKIN, Cleveland; JOHN D. WAKEFIELD, Loveland.

To Cleveland, for duty in connection with the business of Base Hospital No. 4, Lakeside Hospital, Major GEORGE W. CRILE, Cleveland Heights.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, Lieuts. ROY F. DRURY, Akron; BERNARD H. NICHOLS, Ravenna.

To Fort Benjamin Harrison, for instruction in tuberculosis examination, Lieut. GEORGE L. HAEFELE, Cleveland.

To Fort Oglethorpe, for instruction, from Jefferson Hospital, Philadelphia, Capt. RALPH W. HOLMES, Chillicothe.

To Kelly Field, South San Antonio, Texas, for duty, from Fort Riley, Lieut. ARZO J. PARDEE, Ashtabula.

To Philadelphia, for a course of instruction in military roentgenology, Lieut. GUY H. SWAN, Bellefontaine.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieut. DAVID L. FARLEY, Youngstown.

To U. S. Army General Hospital, Williamsbridge, N. Y., for duty as neurologist, from St. Elizabeth's Hospital, Washington, D. C., Capt. William A. Searl, Cuyahoga Falls.

To his home and the inactive list of the Medical Reserve Corps on account of being physically disqualified, Lieut. JOSEPH H. FRAME, Highland.

To the inactive list of the Medical Reserve Corps, from Fort Benjamin Harrison, NATHAN N. MEYER, Youngstown.

Oklahoma

To Army Medical School, for a course of instruction, Lieut. WILLIAM O. FISCHER, Muskogee.

To Cornell Medical College, for a course of instruction in military roentgenology, Lieut. JAMES A. RYAN, Oklahoma.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieut. CLYDE F. LOY, Shawnee.

To Gettysburg, Pa., Reorganization Camp, for duty, from Fort Ontario, N. Y., Lieut. HARRY A. BRIGGS, Henryetta.

To Philadelphia, for a course of instruction in orthopedic surgery, Lieuts. JESSE B. HOLLIS, Hobart; to report to the medical supply officer, Medical Supply Depot, for duty as his assistant, CECIL BRYAN, Vian.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieut. EDWARD B. BROOCKS, Shawnee.

Oregon

To Army Medical School, for instruction from Fort Douglas, Utah, Lieut. Niles P. Paulsen, Portland.

To Camp Kearny, Linda Vista, Calif., for duty in the base hospital laboratory, Capt. DAVID N. ROBERG.

To Camp Lewis, American Lake, Wash., for duty in the division of otolaryngology, section of surgery of the head, Lieut. JOHN A. STEWART, Portland.

To his home and return to the inactive list of the Medical Reserve Corps, on account of being physically disqualified, Lieut. BENJAMIN F. DEVORE, Oakland.

Pennsylvania

To Army School, for duty in the bacteriologic laboratory, from Rockefeller Institute, Lieuts. MAURICE GOLDBERG, Philadelphia; HARRY E. UNGERLEIDER, Philadelphia; WALTER E. LUNDBLAD, Sayre; CEDRIC E. FILKINS, Philadelphia.

To Camp Devens, Ayer, Mass., for duty as instructor in gas defense, Lieuts. GIBSON SMITH, York; for duty, WILLIAM E. GROVE, Johnstown.

To Camp Dix, Wrightstown, N. J., for duty, from Syracuse, N. Y., Capt. JAMES T. MADDEN, Pittston, for duty from Fort Oglethorpe, Lieuts. RICHARD O. MILLER, Erie; DAVID G. HARVEY, Huntingdon Valley; RAYMOND C. FAGLEY, Kulpmont; HENRY A. SMITH, Mechanicsburg; J. F. MARCHAND SNYDER, New Kensington; CHESTER L. BARRY, Oxford; SAMUEL H. BOYD, Philadelphia; HUGH J. DAVIS, Philadelphia; JAY D. LINTON, Philadelphia; CHARLES S. SCHAFER, Philadelphia; ASBURY C. STROUP, Philadelphia; MORRIS O. THRUSH, Philadelphia; DE LA RAY SIGNOR, Quarryville; JOHN F. ZYCHOWICS, Scranton; WILLIAM A. OSTRANDER, Smithport; HARRY S. VAN ETTEN, Stroudsburg; ARTHUR J. DENMAN, Susquehanna; ABNER H. BAUSCHER, Temple; SAMUEL J. ROSE, Hapelton.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Capts. JAMES K. M. PERRINE, Pittsburgh; CARL K. WAGNER, Swissvale; Lieuts. GEORGE T. McNISH, Alverton; PARKER U. WAGNER, Carlisle; CARL F. PIERCE, Greensburg; JOSEPH J. BELLAS, Lansford; WILLIAM B. SKELTON, Meadville; FRANKLIN D. BENEDICT, Philadelphia; ANDREW J. KEENAN, Jr., Philadelphia; SAMUEL STALBERG, Philadelphia; RUSSELL H. KING, Pittsburgh; WILLIAM A. WELDON, San Pedro; HARVEY B. CORNELL, Scranton; ALBERT PILKINGTON, Westchester; WILMER C. DREIBELBIES, Wilkes-Barre; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, WILLIAM W. WOODS, Monte Alto.

To Camp Greene, Charlotte, N. C., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Walter Reed General Hospital, WILLIAM H. HERR, Lancaster; JONATHAN M. WAINWRIGHT, Scranton.

To Camp Hancock, Augusta, Ga., for duty, from Camp Wadsworth, Lieut. WILLIAM P. BARNDOLLAR, Pittsburgh.

To Camp Jackson, Columbia, S. C., for temporary duty, from Fort Oglethorpe, Lieut. STEPHEN S. P. WETMORE, Morrisville.

To Camp Lee, Petersburg, Pa., for duty, from Fort Oglethorpe, Capt. GEORGE C. O. SANTEE, Cressona; Lieuts. WILLIAM C. HENSYL, Berwick; AUDLEY W. RICKETTS, Dempseytown; JOHN J. SWEENEY, Doylestown; SCOTT D. GLEETON, Erie; HARRY GALLAGER, Glen Olden; CLYDE L. WILLIAMS, Harmonsburg; RICHARD S. DAVIS, Philadelphia; WILLIAM O. KLEINSTUBER, Philadelphia; SAMUEL A. BELTZ, Uniontown; THOMAS R. HILLARD, Widnoon; MORGAN E. GRIFFITH, Wilkes-Barre.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Capt. JAMES C. LOGAN, Titusville; Lieuts. EDWIN S. COOKE, Philadelphia; JOHN F. GOLDEN, Dormant; JESSE C. STILLEG, Erie; FRANK P. SUMMA, Kingston; WILLIAM E. HYSKELL, Meadville; HARRY A. CARSKADDEN, Mont Alto; JAMES H. BALDWIN, Philadelphia; EDWARD GRAVER, Pittsburgh; JOHN G. STRIEGEL, Pottsville; SAMUEL A. LEINBACH, Quakertown; DAVID J. JENKINS, Scranton; JAMES L. BRENNAN, Washington; CYRUS JACOBESKY, Wilkes-Barre; LEE C. MUNDY, Wilkes-Barre; BENJAMIN H. PATTERSON, Wilkinsburg; HAROLD E. HERSH, Palmerton; PHILIP S. ROSENBLUM, Philadelphia.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, LEROY UMBURN, Albion; JAMES W. SILLIMAN, Bradenville; IGNATIUS A. BEDNARKIEWICZ, Erie; JOHN H. LLOYD, Erie; LAWRENCE N. BREENE, Farrell; ARTHUR E. BOGART, Philadelphia; BENJAMIN WEINER, Pittsburgh.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Capt. MATTHEW J. SHIELDS, Scranton; Lieut. GEORGE S. DEIBERT, Allentown; HEISTER V. HOWER, Scranton.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieuts. FRANK L. BAUM, Athal; JAMES R. SMITH, Erie; PAUL TIDENCE YOUNG, Erie; JOHN H. HUMES, McKees Rocks; SAMUEL H. PETTLER, New Brighton; JACOB L. ENGLE, Philadelphia; FREDERICK C. PETERS, Philadelphia; AUGUST G. HINKICHS, Pittston; EARL C. WAGNER, Wilkes-Barre.

To Camp Wadsworth, Spartanburg, S. C., for temporary duty, from Fort Oglethorpe, Lieut. FRANK A. BRIDGETT, Philadelphia.

To Camp Wheeler, Macon, Ga., for temporary duty, from Fort Oglethorpe, Lieuts. JOHN J. HISLOP, Miners Mills; PERCY H. SHAW, Philadelphia.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieuts. THOMAS O. WILLIAMS, Brooklyn; HERBERT E. SIMRELL, Clark's Summit; ELMER HESS, Erie; RICHARD L. McNEER, Philadelphia; EDMOND R. LETT, Fallassee; MARTIN W. FREAS, United; GEORGE K. STRODE, Westchester.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, Lieut. BOYD E. WILKINSON, Trevorton.

To Fort Oglethorpe, for instruction, from Jefferson Hospital, Philadelphia, Lieuts. W. LATIMER S. LANDES, Philadelphia; JAMES W. LEVERING, Philadelphia; WILLIAM H. G. MacKAY, Philadelphia; LOUIS R. WILEY, Philadelphia; JOHN E. LIVINGOOD, Womelsdorf.

To Philadelphia, for a course of instruction in orthopedic surgery, from Army Medical School, GEORGE H. FAGGART.

To Pittsburgh, for instruction in military roentgenology, from Fort Benjamin Harrison, Lieut. EDWIN P. BUCHANAN, Pittsburgh.

To Rockefeller Institute, for a course of instruction in laboratory work, from Fort Oglethorpe, Lieuts. JOHN W. GOODSELL, New Kensington; PHILIP F. WILLIAMS, Philadelphia; ERNEST J. ATEN, Pittsburgh.

To his home and the inactive list of the Medical Reserve Corps of the Army, Capt. FREDERICK PROESCHER, Pittsburgh.

Rhode Island

To Camp Dodge, Des Moines, Ia., for duty in the base hospital laboratory, from Rockefeller Institute, JAMES HAMILTON, JR., Providence.

South Carolina

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Capt. ISADORE SCHAYER, Columbia.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieut. WILLIAM B. ACKERMAN, Walterboro.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. FITZHUGH P. SALLEY, Buffalo; CLARENCE D. JACOBS, Kingstree; FRANK M. HARVIN, Pinewood.

To Camp Meade, Annapolis Junction, Md., and report to the commanding officer of the base hospital, for temporary duty, relieved from present duties at this camp, Lieut. HERBERT H. HARRIS, Anderson; for duty, Lieut. LACY W. CORBETT, Bishopville.

To Camp Upton, Yaphank, L. I., for duty from Fort Oglethorpe, Lieuts. THOMAS M. MOORE, Hagood; WILLIAM J. BURDELL, Lugoff.

South Dakota

To Camp Logan, Houston, Tex., for duty in charge of the division of ophthalmology, section of surgery of the head, from Camp Gordon, Atlanta, Ga., Lieut. DENNIS F. O'CONNOR, Elkton.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieut. ARCHIE McCALLISTER, Crow Creek.

To Kelly Field, South San Antonio, Tex., for duty, from Fort Riley, Lieut. SIGFRED ENGH, White Rock.

Tennessee

To Camp Cody, Deming, N. M., for duty in the base hospital laboratory, from Rockefeller Institute, Lieut. GEORGE L. BROWN, Memphis.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. OTEY J. PORTER, Columbia; Lieuts. LEON D'CASTO COTTEN, Alexandria; GUY C. ANDERSON, Eads; JOHN G. SEAY, Germantown; WILLIAM G. SAUNDERS, Jackson; FREDERICK W. LEE, Springfield.

To Camp Lee, Petersburg, Va., for duty from Fort Oglethorpe, Lieuts. WILLIAM R. BOOHER, Bristol; WILLIAM H. BALLARD, Laconia; WILLIAM D. CAGLE, Lobelville; CHARLES W. BROWN, Nashville; ROBERT L. DOSSETT, Tullahoma.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. LAWRENCE L. KELLER, Memphis; JOHN H. MORRIS, Pulaski.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieuts. WILLIAM C. SAIN, Bolivar; DAVID A. WALKER, Friendship; THOMAS H. INGRAM, Memphis; FRANCIS M. BOYATT, Oneida.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Lieut. FLEETWOOD BRUBER, Nashville.

To Camp Upton, Yaphank, L. I., for duty from Fort Oglethorpe, Lieuts. HARRY E. HALL, Apison; E. GACOVIA MAXWELL, Darden.

To Phipps Clinic, Baltimore, Md., for intensive training in his specialty, from Fort Oglethorpe, Lieut. GEORGE A. HATCHER, Nashville.

To Washington, D. C., and report in person to the commanding officer, Quartermaster Repair Unit No. 1, for duty, from Army Medical School, Lieut. WILLIAM V. PRUETT, Brownsville.

To the inactive list of the Medical Reserve Corps from duty at Camp Wadsworth, Lieut. THOMAS W. RHODES, Whiteville.

Texas

To Army Medical School, for a course of instruction from Fort Sam Houston, Tex., Lieut. WILLIAM E. NESBIT, San Antonio.

To Boston, Mass., for instruction in orthopedic work, and upon completion of this course to return to the inactive list of the Medical Reserve Corps, Major CHARLES S. VENABLE, San Antonio.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. EUGENE M. PARRISH, Dallas.

To Camp MacArthur, Waco, Tex., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Capt. ISIDORE S. KAHN, San Antonio.

To Richmond Medical College, Richmond, Va., for a course of instruction in military roentgenology, Capt. WILLIAM R. FICKESSEN, San Antonio.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieut. RICHARD C. CURTIS, Temple.

Vermont

To Camp Lee, Petersburg, Va., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieut. FRANK L. GILBERT, Grafton.

To Camp Vail, Little Silver, N. J., for duty with the Signal Corps, from Fort Benjamin Harrison, Lieut. WALTER F. McKENZIE, Burlington.

To Syracuse, N. Y., Reorganization Camp, for duty, from Fort Ontario, N. Y., Lieut. VICTOR P. GENGE, Newport.

Virginia

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. CHARLES A. YOUNG, Gore; MERIWETHER L. ANDERSON and JAMES G. BOISSEAU, Richmond.

To Camp Doniphan, Fort Sill, Okla., for duty in the base hospital laboratory, from Rockefeller Institute, Capt. ERASMUS G. HOPKINS, Richmond.

To Camp Lee, Petersburg, and report to commanding general, Eightieth Division, for duty, relieved from present duties at this camp, Capt. HUGH T. NELSON, JR., Charlottesville; Lieuts. WILLIAM F. MERCHANT, Manassas; HARRY R. SEELINGER, Norfolk; for duty, from Fort Oglethorpe, Lieut. WILLIAM F. PASSER, City Point; for temporary duty, Lieut. CARROLL E. FOLEY, Lovettesville.

To Camp Pike, Little Rock, Ark., for duty from Fort Oglethorpe, Lieut. WILLIAM A. LUCAS, Toms Creek.

To Camp Upton, Yaphank, L. I., for duty from Fort Oglethorpe, Lieuts. OLIVER F. BLANKINGSHIP, Richmond; WALTER C. TROW, Warrenton.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieut. JAMES M. DAVIS, Westboro.

To Fort Oglethorpe for duty, Major WILLIAM J. BELL, Bristow, for instruction from school of military roentgenology at Richmond, Lieuts. CHARLES L. RUDASILL and HENRY S. STERN, Richmond.

To Fort Ontario, N. Y., for duty with Field Hospital No. 28, from Fort Benjamin Harrison, Lieut. JOHN C. PHILLIPS, Portsmouth.

To Philadelphia, for orthopedic instruction, from Fort Oglethorpe, Capt. HOWARD FLETCHER, Fairfax.

To Richmond Medical College, Richmond, for a course of instruction in military roentgenology, Lieut. FREDERICK P. FLETCHER, Richmond.

Washington

To Camp Lewis, American Lake, Wash., for duty in the orthopedic service, Capt. EDWARD A. RICH, Tacoma; to report to the commanding officer of the base hospital for duty in the genito-urinary and dermatologic section of the base hospital, relieved from other duties at this camp, Lieut. ALEXANDER H. PEACOCK, Seattle.

West Virginia

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, DENNIS B. JARRELL, Woodville.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. RICHARD H. EDMUNDSON, Morgantown.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. FRANK J. BROSCHART, Marting; CHARLES S. COWIE, Martinsburg.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieuts. CLYDE A. HARPER, Amma; REECE M. PEDICORD, Elm Grove; EMERSON MEGRAIL, Wheeling.

To his home and return to the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, Lieut. CHARLES F. MAHOOD, Alderson.

Wisconsin

To Camp Grant, Rockford, Ill., for temporary duty, Lieut. JOHN E. MULSAW, Two Rivers.

To Fort Snelling, Minn., and report to the commanding officer for duty as assistant surgeon, relieved from present duties at this camp, Capt. ROBERT M. NICHOLS, Sheboygan.

To Kelly Field, South San Antonio, Tex., for duty, from Fort Riley, Lieut. GEORGE S. DARBY, Brodhead.

To Sparta, Wis., Camp Robinson, for duty, Lieut. JOHN W. HANSEN, Milwaukee.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Chicago

Personal.—Dr. Heman H. Brown was elected president of the Michigan Society of Chicago at its annual meeting, October 27.

Hospital Contract Let.—A contract to build a new wing to the Contagious Disease Hospital was awarded, October 27, for $374,900.

Billings Tells of Russian Experiences.—A testimonial banquet was given by the Physicians' Club of Chicago, in honor of Dr. Frank Billings, at the Auditorium Hotel, November 1. Dr. Augustus O'Neill acted as toastmaster. A silver loving cup was presented to Dr. Billings on behalf of the Physicians' Club.

County Hospital Branch.—Circulars advising voters to vote for the proposition to spend a million dollars for the erection of a Branch County Hospital at Ninety-Fifth and State streets have been sent out by the Branch Association of the County Hospital, which urges the great need for this institution.

Canadian Surgeon-General in Chicago.—Surg.-Gen. John T. Fotheringham, C.A.M.C., K.M.G., who went to France in 1914, with the first Canadian contingent, and was in active service in France until April of this year, when he was made Surgeon-General of Canada, was the guest of honor of the Institute of Medicine of Chicago at its meeting, held November 2, at the LaSalle Hotel, where he delivered an address on "Modern Methods in War from a Medical Standpoint." After the address a buffet supper was served.

IOWA

Hospital News.—The Bertha M. Parsons Building of the Iowa Congregational Hospital Association, Des Moines, was dedicated, October 23. The building is four stories in height, of brick, fireproof, and will accommodate fifty patients.——The 240 acres of land adjacent to the city limits of Shenandoah, making up the bulk of the gift for a memorial hospital by Mrs. Catherine Hand, were sold, October 18, for $65,040.

Southeastern Physicians Elect Officers.—The annual meeting of the Southeastern Iowa Medical Association was held at Fairfield, October 18. Washington was selected as the next place of meeting, and the following officers were elected: president, Dr. James S. Gaumer, Fairfield; vice president, Dr. Elias B. Howell, Ottumwa; secretary-treasurer; Dr. Carl W. Wahrer, Fort Madison, and censors, Drs. Otto A. Geeseka, Mount Pleasant; George W. Hay, Washington, and Samuel K. Davis, Libertyville.

MARYLAND

Personal.—Capt. Alexander D. McConachie, M. R. C., U. S. Army, has left for Plattsburg, N. Y., where he will be in charge of the eye, ear and throat surgical section of the base hospital.——Dr. William S. Thayer, Baltimore, who went to Russia with the Red Cross unit, is in charge of the Red Cross work in Petrograd. He has seventeen men assisting him.——Dr. Archibald C. Harrison, who recently underwent abdominal section at St. Joseph's Hospital, Baltimore, is reported to be convalescent.——Dr. Richard F. Kieffer, Baltimore, who is on duty with a hospital unit on the western front, has recovered from a severe attack of fever.

Physicians Endorse New City Charter.—The Physicians' Civic Club of Baltimore, after a full discussion, has unanimously endorsed a movement to secure a new charter under the Home Rule Amendment. Eighteen years ago the city adopted a charter which earned for itself the title of "Baltimore's Model Charter." Today the charter is out of date. Since its adoption every city but one in the country has changed its charter, incorporating various modern features for securing greater efficiency and greater responsiveness to the will of the people. The physicians stand back of this movement, and will advocate a new charter board to study the needs of Baltimore at the election, November 6.

MASSACHUSETTS

Health Association Meeting.—The regular quarterly meeting of the Massachusetts Board of Health was held in Pittsfield, October 25. The topics considered at the meeting were "The Importance of Modern Public Health Work," "The Work of the Committee on Public Health of Massachusetts Medical Society," "Rural Sanitation," "Industrial Hygiene," "Child Conservation in Time of War," and "Rats, Insects, and Public Enemies."

MINNESOTA

Personal.—Dr. Ernest W. Cowern, North St. Paul, has been appointed physician of Ramsey County. The position carries no salary, and Dr. Cowern is the first man to be officially appointed in ten years.

Minnesota Eye, Ear and Throat Men Elect Officers.—At the annual meeting of the Minnesota Academy of Ophthalmology and Oto-Laryngology, held in St. Paul, the following officers were elected: president, Dr. Frank E. Burch, St. Paul; vice presidents, Drs. James S. Reynolds, Minneapolis, and Conrad W. Wilkowske, Chippewa Falls, Wis., and secretary-treasurer, Dr. John H. Morse, Minneapolis.

New Officers.—At the annual meeting of the St. Louis County Medical Society of Duluth, October 19, Dr. Arthur N. Collins, Duluth, was elected president; Dr. John H. Crowe, Virginia, vice president, and Dr. Charles H. Schroder, Duluth, secretary-treasurer (reelected).——At the annual meeting of the Minnesota Public Health Association, held in St. Paul, the following officers were elected: president, Dr. W. L. Beadie, St. Paul; vice presidents, Mrs. J. R. Brandrup and Mrs. A. L. Robinson; secretary, Dr. Edward L. Tuohy, Duluth, and treasurer, Mr. W. A. Laidlaw. The organization proposes to change from an association to a corporation.

Nurses and the Red Cross Seal Campaign.—In 1916, according to the *Minnesota Public Health Association Journal*, the contribution of the state to the Red Cross and to the Red Cross Seal Campaign was $40,000. It is expected this year that it will amount to $60,000. Through an arrangement with the Public Health Association, each town in the state selling a certain number of seals was entitled to the services of a public health nurse for a period of from one week up, depending on the number of seals sold. Sixty-four towns in 1916 had nurses under this arrangement. The services of the nurse proved so satisfactory in these communities that in almost every instance she was retained an additional week at the expense of the community. For the 1917 campaign, a nurse experienced in all branches of public health work will be furnished free for one week to any community for each 7,000 seals sold. A physician experienced in public health work will be furnished, to any community, with all necessary supplies, for one week for every 20,000 seals sold. This physician will make an intensive health survey, a sanitary survey, school, medical supervision, do infant welfare work, or all of these combined.

NEBRASKA

New Hospital.—Dr. Herschell B. Cummins has recently opened the Seward Hospital, located in the southeast part of Seward.

Lincoln Medical Women Organize.—The women physicians of Lincoln and vicinity have organized the Medical Women's Club of Lincoln, and elected Dr. Daisy M. Hansen, president, and Dr. Laura J. Brown, secretary.

Free Service to Soldiers.—At the annual meeting of the Buffalo County Medical Society, held at Kearney, October 15, it was voted to give free surgical service to men rejected for the Army or Navy of the United States because of minor defects. Dr. Charles K. Gibbons, Kearney, was elected president; Dr. Raymond L. Hart, Amhurst, vice president, and Dr. Joseph L. Bennett, Kearney, secretary-treasurer.

University Hospital Dedicated.—The teaching hospital of the University of Nebraska College of Medicine was dedicated with appropriate ceremonies, October 17, the principal speaker being Chancellor Avery of the university. The new structure, now in full operation with a capacity of 119 beds, was made possible by three legislative appropriations, $150,000 for the building, $65,000 for equipment, and $100,000 for biennial maintenance.

Personal.—Dr. Maurice I. Smith, for several years connected with the department of pharmacology of the University of Michigan, Ann Arbor, has been placed in charge of the department of pharmacology in the College of Medicine in the University of Nebraska, Omaha; Dr. J. A. Kittleson of the University of Minnesota has been appointed professor of anatomy, and Dr. S. A. Rubnitz, instructor in biochemistry. ——Dr. Edwin C. Henry, Omaha, has been appointed chief surgeon of the Orthopedic Hospital, Lincoln, during the absence of Dr. J. L. Lord, in the military service.——Dr. J. W. Brendell, Avoca, fractured his wrist, October 6, while cranking his motor car.

NEVADA

State Society Meeting.—The Nevada State Medical Association held its fourteenth annual meeting at Reno, October 18 and 19, under the presidency of Dr. Raymond St. Clair, Reno, and elected the following officers: president, Dr. Henry A. Brown, Reno; vice presidents, Drs. Martin A. Robinson, Reno, and John A. Ascher, Sparks; secretary-treasurer, Dr. John L. Robinson, Reno; trustee, Dr. George L. Servoss, and delegate to the American Medical Association, Dr. William Z. Dahl, Reno.

NEW JERSEY

New County Officers.—At the annual meeting of the Salem County Medical Society, held in Salem, October 10, the following officers were elected: Dr. Henry T. Johnson, Pedricktown, president; Dr. Carey L. Lamborn, Penns Grove, vice president, and Dr. John F. Smith, Salem, secretary-treasurer.

Personal.—Capt. William J. Condon, M. R. C., U. S. Army, New Brunswick, was acquitted, October 27, on the charge of murdering John V. Piper, a student at Rutgers College. ——Dr. Edward A. Y. Schellenger has resigned as a member of the board of managers of the Camden County Tuberculosis Hospital, Ancora, and Dr. Edwin C. Pechin has been appointed in his place.——Dr. R. Mills Smith, Camden, October 17, was awarded $1,140 damages for injuries sustained in a grade crossing collision on the Atlantic City Railroad, at Gloucester.

NEW YORK

Personal.—Dr. William E. Gorton, for twenty years a member of the Corning Board of Education, and for the past seven years its president, has resigned, and Dr. E. Eugene Sullivan, Elmira, has been appointed his successor.

Medical Inspectors and Physical Educators' Association.—This organization will hold its next meeting at a place to be designated at one of the sessions of the Section on Hygiene and Physical Education of the New York State Teachers' Association at Syracuse, November 26-28. The purpose of this meeting is to elect officers for the following year and to vote on the constitution of the association.

New York City

Brooklyn Districted.—The health department, January 1, will put into effect its new method of local administration in Brooklyn. This involves the division of the city into fourteen health districts, each with an official in charge, who will report to the city health commissioner.

Microscopic Exhibit.—The New York Microscopical Society will give its annual exhibition at the American Museum of Natural History, November 3, in the evening. In addition to slides of interest in the arts, sciences and industries, there will be a demonstration by the department of health of practical use of the microscope in safeguarding public health.

Eastern Pediatric Societies to Meet.—The combined meeting of the New England Pediatric Society, the Philadelphia Pediatric Society and the Section on Pediatrics of the New York Academy of Medicine will be held in New York City, November 8. There will be clinics during the day, a dinner at the Harvard Club, and after dinner talks on the pediatrician's part in the war.

The Health Department and the Milk Problem.—Loose milk is sold in this city as it has been for years in conformity with regulations of the department of health. A statement made by the department of health emphasizes the fact that the great reduction in infant mortality in this city in recent years is to a large extent due to the general recognition that the only safe milk for babies is Grade A bottled milk. The Bureau of Public Health Education of the department of health is preparing a poster which contrasts the relative costs and food values of milk at 14 cents a quart, porterhouse steak at 35 cents a pound, and eggs at 60 cents a dozen. This shows that even at present prices milk is by far the cheapest of building foods.

Law Does Not Protect Women in New Employments.—A recent *Bulletin* of the department of health relates that an investigation of the conditions under which women elevator operators work, which has just been made by the Division of

Industrial Hygiene, shows that in some instances the conditions under which the women work are insanitary and the hours long; in one instance the night operator was on duty for fifteen hours, less an hour for midnight lunch. These investigations have brought out the fact that the state labor laws regulating the conditions of employment for women only provide for a regulation of conditions of employment of women in factories, shops and stores. The department of health intends to keep the apartment houses where undesirable conditions have been found under observation, and to find a way of safeguarding the health of these women.

Prenatal Instruction to Mothers.—A recent communication from the health department of New York City points out that if a further definite impression is to be made in the infant mortality rates it must come through concerted efforts to reduce the deaths from congenital diseases, and particularly during the first month of life. In order to further this work the health department has organized a special corps of nurses to instruct mother's in matters pertaining to home and personal hygiene, diet, etc., and all matters that will make for healthier mothers and more vigorous children and for reduction in the number of stillbirths. These nurses are assigned to a limited number of baby health stations, and the nurses in charge of the fifty-nine baby health stations throughout the city are prepared to afford similar instruction. The health department feels that the general practitioners of the city should avail themselves of this service to a greater extent than heretofore, and their cooperation is requested to the end that they notify a baby health station nurse of those cases which they believe would be materially benefited by prenatal instruction, so that the nurse may visit and instruct her.

OHIO

Hoover Back in Cleveland.—Major Charles F. Hoover of the Lakeside Hospital Unit, who has recently returned from the western war front, spoke on "The Medical Aspects of the War" before the Academy of Medicine of Cleveland, October 19.

Million for Convalescent Hospital.—The health commissioner of Cleveland has asked that the voters pass on the consideration of the use of the entire apportionment of the million-dollar hospital bond fund for the use of the new convalescent hospital at Warrensville. This, he claims, will relieve the congestion at the City Hospital and at other Cleveland hospitals, and, furthermore, will enable Cleveland to care for wounded soldiers.

Personal.—An explosion, believed to have been caused by gas, wrecked the house of Dr. Leo F. Towers, Toledo, October 19.——Dr. Rush R. Richison, Yellow Springs, has been appointed superintendent of the district tuberculosis hospital, Springfield, succeeding Dr. Henry Baldwin. The appointment will become effective, Jan. 3, 1918.——Dr. Robert C. Longfellow, Toledo, chairman of the Elk's Food Conservation Bureau, who offered his service and that of the Toledo Clinical Laboratories for government use, has been appointed a member of the county committee by the state food administrator.

District Association Meetings.—The annual meeting of the Ninth District Medical Association was held in Portsmouth, October 4. Ironton was selected as the next place of meeting. Dr. W. Wilson Lynd, Ironton, was elected president, and Dr. Ephraim E. Ellsworth, Ironton, secretary.——The Tenth District Medical Association, at its annual meeting in Mount Vernon, October 2, elected Dr. Charles D. Mills, Marysville, president; Drs. Howard E. Jones, Circleville; Charles E. Trimble, Crestline; Oscar W. Bonner, Delaware; Herbert M. Platter, Columbus; Francis W. Blake, Gambier; Amos F. Green, West Jefferson; George H. Pugh, Mount Gilead; Raymond E. Bower, Chillicothe; Argus B. Swisher, Marysville, and Blenn R. Bales, Circleville, vice presidents, and Dr. George W. Keil, Columbus, secretary-treasurer.——The Second Counsellor District Medical Association held its annual meeting and postgraduate clinic course at Dayton, September 24 to 28, under the presidency of Dr. Leora G. Bowers, Dayton. Clinics were held from 9 to 4 on each day of the session, and the following officers were elected, September 27: president, Dr. Edwin M. Huston, Dayton; secretary, Dr. Edgar L. Braunlin, and treasurer, Dr. Herbert C. Haning, all of Dayton.——The Eighth Counsellor District Medical Society, at its meeting in Zanesville, September 20, elected Dr. John G. McDougal, New Lexington, president, and Dr. Robert W. Miller, Hemlock, secretary-treasurer. New Lexington was selected the place of meeting for next year.

Cincinnati

Personal.—Dr. Harry Freudenberger has been granted a permit in the Probate Court to change his name to Philip Gath.——Dr. Allen W. Freeman assumed his duties as state health commissioner, October 1.——Dr. John M. Withrow has made a plea in behalf of the newly created State Board of Education for funds for the overhead expenses of the board, in applying the Smith-Hughes Vocational Education Tax.

OKLAHOMA

Personal.—At its October meeting, the Board of Medical Examiners of Oklahoma elected as secretary, Dr. James J. Williams of Weatherford, in place of Dr. Ralph V. Smith, Tulsa, who resigned and joined the Medical Reserve Corps.

Antituberculosis Work.—The Oklahoma Association for the Study and Prevention of Tuberculosis has selected Jewell Schevitz, who has been director of the Sanitary Survey of Union Hill, N. J., as secretary of the association, with a special duty of organizing the state for permanent antituberculosis work. Mr. Schevitz has already opened office in Oklahoma City.

PENNSYLVANIA

Glanders Epidemic.—Glanders is reported to be epidemic in Pittsburgh, where in the three weeks preceding October 11, thirty horses afflicted with the disease were shot. Watering troughs throughout the city have been ordered closed.

Cumberland Valley Physicians Meet.—At the fifteenth annual meeting of the Cumberland Valley Medical Association, held in Boiling Springs, the following officers were elected: president, Dr. Percy D. Hoover, Waynesboro; vice presidents, Drs. William C. Schultz, Waynesboro, and Henry C. Lawton, Camp Hill; secretary, Dr. John J. Coffman, Scotland (reelected), and treasurer, Dr. John C. Gilland, Greencastle.

Personal.—Dr. Samuel G. Dixon, state health commissioner, who has been under treatment in the University Hospital, Philadelphia, on account of a nervous breakdown, is reported to be improving.——Dr. Harvey L. Gerberich, Lebanon, who was operated on for strangulated hernia in the Good Samaritan Hospital, October 14, is reported to be making satisfactory progress toward recovery.——Dr. William M. Lynch, Clark's Summit, has been reelected superintendent of the Fairview Hospital for the Criminal Insane.——Dr. Adolph Koenig, Pittsburgh, has been reappointed a member of the State Bureau of Medical Directors and Licensure.——Dr. Howard W. Gibbs, Scranton, has been made surgeon in chief of the Northern General Hospital, Sheffield, England.——Dr. John B. McAlister, Harrisburg, has been appointed a member of the commission to study health insurance.

Hospital Course for War Nurses.—October 25, hospitals throughout the state were asked by the state committe of public safety to provide a special three-month training course for nurses in an effort to meet the shortage caused by the war. The appeal was made by the department of the committee devoted to the work of sanitation and medicine, and was sent to each of the principal hospitals. In urging the adoption of the plan, the appeal says:

> "Such a course is offered at the University of Pennsylvania Hospital to women who do not care to enter for three years' training to become graduate nurses. Women between the ages of 21 and 42 who have completed Red Cross work in hygiene and home care of the sick are admitted to this course. They are required to spend a probationary period of two weeks in the hospital, furnish health certificates and personal references before being accepted for the three-months' work. Their work includes practical training, bed-making, serving food, caring for wards, waiting on patients in minor capacities with full opportunity being given for observing all details of hospital work.

Philadelphia

Contract Let.—The Department of Health and Charities has awarded the contract for the power plant for the Philadelphia General Hospital.

Personal.—Drs. Samuel Wolf and Rae S. Dorsett have been appointed members of the staff of the Philadelphia General Hospital.——Dr. Frank Q. Hammond has succeeded Dr. Alexander C. Abbott on the board of health. Dr. Abbott has entered the federal service.

Tree as Memorial to Dr. James William White.—A red oak tree was planted in Rittenhouse Square, October 26, in memory of the late Dr. James William White, noted surgeon and author. The ceremony, arranged by the Walnut Street Business Association, was the feature of fall Arbor Day observances in this city. Edgar Fahs Smith, provost of the

University of Pennsylvania, and Dr. Wilmer Krusen, director of public health and charities, spoke at the Rittenhouse Square celebration. Eli K. Price accepted the tree on behalf of the park commission.

Recommendations Regarding Venereal Diseases.—The following recommendations adopted by the Committee on Health and Sanitation of the Philadelphia District Committee of the Pennsylvania State Committee of Public Safety have been made to the director of the Department of Health and Charities of the City of Philadelphia:

1. That for the best interests of the city, and the sailors and soldiers within its borders, prostitutes, when diseased, be isolated, efficiently treated medically, and quarantined in properly equipped hospitals until their infectious stage has subsided.

2. That a squad of women policemen be created to control street walkers.

3. Realizing the appalling fact that 90 per cent. of dispensary patients afflicted with venereal diseases quit treatment before discharged cured, it is desirable to use coercion through the cooperation of civil and medical authorities, of these moral slackers, if the indiscriminate spread of venereal disease is to be controlled. It is highly important before undertaking such action to abolish the medical imposters infesting communities, whose sole object is to lure and rob ignorant young men; therefore, the Board of Health is urged to adopt and enforce regulations which shall abolish so-called "medical museums" and advertising "specialists" and quacks. Also,

4. That the Department of Health have notices relative to the diagnosis and treatment of venereal disease prepared, stating the names of hospitals fulfilling the standard requirements, their location, dispensary and admission hours; that these notices be framed and placed in all public lavatories, saloons, theaters, hotels, industrial plants, department stores, military bases and cantonments.

5. That the venereal wards of the Philadelphia Hospital have their bed capacity increased so that that institution may properly care for infected prostitutes and misdemeanants referred from the Municipal Court and other sources.

Recommendations made to the State Board of Medical Education and Licensure:

1. That all general hospitals receiving or hoping to receive State aid financially shall maintain a separate Department of Genito-Urinary Surgery and Venereal Diseases with a recognized Staff position distinct from the Department of General Surgery.

2. That this Department shall consist of both an Out-Patient and Ward Service, prepared to receive patients afflicted with acute contagious and transmissible venereal diseases, who at the discretion of the Chief of the Genito-Urinary Department should be admitted.

3. That such hospitals be provided with the proper laboratory equipment for microscopical, bacteriological, serological or other examination and treatment of patients.

4. That in all hospitals maintaining a Department of Venereal Diseaeses it is advisable for the Social Service Department to provide male as well as female representatives for cooperation in tracing and controlling moral slackers afflicted with venereal disease.

VIRGINIA

Hospital Association Incorporated.—The Prince George Hospital Association has been incorporated at Hopewell with a capital of $50,000. Dr. Johannes C. Bodow, Hopewell, is president of the association, and C. F. Cockey, secretary-treasurer.

Richmond Districted.—In order to promote efficiency of inspection, Dr. Roy K. Flannagan, chief health officer of the city, has divided the city into eight districts, with an inspector for each district. These inspectors will be under the general supervision of Chief Inspector Walter Lowry.

Personal.—Drs. Stuart McGuire, Richmond, and Thomas C. Firebaugh, Harrisburg, have resigned from the state board of health on account of entering military service. Harry T. Marshall, Charlottesville, has been appointed a member of the board to succeed Dr. Firebaugh.——Dr. C. Curtis Hudson, Danville, has been elected full-time health officer of Charlotte, N. C.——Dr. Edward T. Glover has succeeded Dr. Gray G. Holladay, Portsmouth, resigned, as coroner of Norfolk.

New Officers.—At the annual meeting of the James City County Medical Society, held in Williamsburg, the following officers were elected: president, Dr. John M. Henderson, mayor of Williamsburg; vice president, Dr. Albert M. Sneed, Toano, and secretary-treasurer, Dr. David J. King, Williamsburg. A resolution was adopted providing that each member agree to contribute $50 a year toward the fund to be paid monthly to the wife and dependents of any member of the society who may be called into service of the country.

CANADA

Hospital News.—Mr. Horace L. Brittain of the Municipal Research Department, Toronto, has been appointed superintendent of the Toronto General Hospital for one year, Dr. Charles K. Clarke, who resigned over a year ago, continuing as medical superintendent. The Toronto General Hospital has been running behind at the rate of $4,000 a month, and has recently asked the city council for a grant of $50,000. In fact, all the hospitals have been hard pressed, as they are all seeking grants from the city treasury.

New Ontario Laboratories Opened.—October 25, the formal opening exercises of the new laboratories of the Ontario Board of Health were conducted by the Duke of Devonshire. The laboratories are about 8 miles from Toronto, and are the gifts to the University of Toronto of Col. Albert Goodesbane, and represent an expenditure of $75,000. The director is Major J. G. Fitzgerald. They are named the Connaught Laboratories, after the former Governor-General of Canada, and are the only serum laboratories in Canada. Besides preparing tetanus serum for overseas, the laboratories also prepare, both for war and local purposes, meningitis and pneumonia serum, diphtheria antitoxin, typhoid vaccine and the Pasteur treatment.

Personal.—The Canadian Associated Press reports that Gen. Guy Carleton Jones, C. M. G., Ottawa, Ont., is returning to Canada to resume his duties as Director-General, Army Medical Services, which have lately been discharged by Gen. John Taylor Fotheringham, C. M. G.——Dr. Wilmer Denny, who was graduated from the Western University, London, Ont., a few months ago, has been commissioned medical officer in the Royal Navy.——Lieut. W. S. Smith, R. A. M. C., Kingston, Ont., who has served in France and Saloniki, was home for a short time with rheumatism, but has joined the C. A. M. C., and has returned to England.——Major Henry E. Paul, Fort William, Ont., is in command of the Canadian hospital at Etchinghill, England. On the staff are Capts. Henry K. Bates, Toronto; George O. Scott, Ottawa; Allan M. Yates, London, Ont.; John G. Gunn, Ailsa Craig, Ont.; William T. Lockhart, Carnduff, Sask.; Burpee F. Steeves, Claresholm, Alta.; A. B. Jackson, Simcoe, Ont., and Lieut. A. V. Greaves, Toronto.

Dr. Simon Flexner in Toronto.—October 25, Dr. Simon Flexner of the Rockefeller Institute, New York, addressed a large audience of medical men and students in Convocation Hall, University of Toronto. The subject was "Certain War Activities of the Institute." Dr. Alexis Carrel, New York, had been in France since the beginning of the war, and one of the first of the war activities was to deal with the alarming and frequent occurrence of gaseous gangrenes, and even yet no adequate preventive measures had been evolved. From the time of the discovery of the micro-organism responsible for the disease until 1914, only 200 cases had come to light. It became common in France in a very short time, induced largely by the richly fertilized soil. The bacilli clung even to sterilized uniforms. He told of the opening of a small hospital for experimental purposes, and of the use of chlorin and boric acid to eliminate the bacilli from the system. Finally, an antitoxin was compounded which, it was hoped, would dominate the gaseous gangrene curse. He also spoke of the tetanus antitoxin, and looked for much preventive and curative benefit therefrom. Pictures were shown of the experimental hospital.

GENERAL

Southern Physicians to Meet.—The Southern Medical Association will hold its annual meeting in Memphis, Tenn., November 12-15, under the presidency of Dr. Duncan Eve, Sr., Nashville.

Railway Surgeons to Meet.—The New York and New England Association of Railway Surgeons will hold its twenty-seventh annual session at the Hotel McAlpin, New York, November 8, under the presidency of Dr. Halbert G. Stetson, Greenfield, Mass.

The Waring Case.—House Bill No. 6343 has been brought before Congress by Mr. Montague, and authorizes the President to nominate, and with the advice and consent of the Senate, to appoint John B. Waring, late a captain in the Medical Corps on the retired list, increasing the list by one, for this purpose.

New Electrotherapeutic Officers.—The American Association of Electrotherapeutics and Radiology, formerly the American Electrotherapeutic Association, at its annual meeting elected the following officers: president, Dr. Frank B. Granger, Boston; secretary-registrar, Dr. Byron S. Price, New York, and treasurer, Dr. Emil Heuel, New York.

Foundation of Urology.—Under an agreement between the executors of the estate of the late James Buchanan Brady and his heirs, most of the estate, estimated at $3,000,000, is now

available for the New York Hospital, and makes possible the establishment of the James Buchanan Brady Foundation of Urology, which is in accordance with the testator's plans. Dr. Oswald S. Lowsley, who was named by Mr. Brady as director, has the plans of the foundation in charge.

New Officers for Public Health Association.—At the forty-fifth annual meeting of the American Public Health Association, held in Washington, D. C., October 17-20, under the presidency of Dr. William A. Evans, Chicago, the following officers were elected: president, Dr. C. O. Hastings, Toronto, Ont.; vice presidents, Drs. George M. Kober, Washington, D. C.; Emanuel S. Iglesias, Vera Cruz, Mexico, and Guilford H. Sumner, Des Moines, Iowa; secretary, A. W. Hedrich, Boston, and treasurer, Lee K. Frankel, New York. The association adopted the resolution favoring the bestowal of the Nobel Price on Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army, for placing yellow fever in the list of preventable diseases.

Georgia Board Investigates Charges.—The Georgia Board of Medical Examiners recently heard charges preferred against Dr. J. A. McLeay, Atlanta, to the effect that, under the charter of the Southern College of Medicine and Surgery of Atlanta, which was closed in 1914, he had been illegally issuing medical diplomas for a stipulated sum. The matter was referred to the solicitor general of the superior court for action. The board also heard charges of using forged licenses against Drs. C. J. Malloy, Helena; S. B. Ellis, Whilesburg; F. C. Bentley, Crandall, and W. R. Rothrock, Athens. There is no record of licenses having been issued to these physicians. The board directed the secretary to assist the county solicitors in prosecuting these men on charges of illegally practicing medicine.

Foreign Patents to Be Open to American Manufacturers.—Since the outbreak of the war there has been a shortage of certain synthetic drugs, especially salvarsan and neosalvarsan. As the patents for many of these drugs were owned by German firms, American manufacturers, of course, could not make them. When the United States severed its relations with Germany, it was realized that some provision should be made to supply articles controlled by enemy-owned patents. As early as June, Congress was considering "the trading with the enemy act," then known as "The Adamson Bill," the purpose of which was to confer authority on the President to license American firms to use German patents. In the latter part of September, the "trading with the enemy act" finally became a law.

During this period, Dr. Marston T. Bogert, chairman of the Committee on Chemistry of the National Research Council, was being aided by a special committee on synthetics composed of Julius Stieglitz, chairman, president of the American Chemical Society; Roger Adams of the University of Illinois, M. Gomberg of the University of Michigan and W. A. Puckner, secretary of the Council on Pharmacy and Chemistry. (Shortage of Synthetic Drugs, THE JOURNAL, Aug. 4, 1917, p. 400.) This committee gathered information as to drugs which were difficult to obtain, and considered recommendations which might be made for the enforcement of the law. On October 30, the Federal Trade Commission held a conference in Washington regarding the granting of licenses of enemy patents, at which the material of this and other committees was placed at the disposal of the Trade Commission. According to reports at hand, the discussion covered questions of manufacture, of control of the product, distribution and price.

The regulations issued by the commission based on the law safeguard the interests of patent owners, who, after the war, are to receive some remuneration for the use of their inventions, and provides that licenses will be issued only where the public welfare demands it—that is, to supply a demand not now being met. In this connection it is well to point out that the number of drugs of which there is a serious shortage is not great. Even in Great Britian—which has a law similar to the trading with the enemy act—relatively few German patents have been turned over to English licensees.

FOREIGN

Argentine Medical Bibliography.—Under the auspices of the *Revista Medica del Rosario*, the classified medical bibliography for Argentina during the year 1916 has been published in a 120-page pamphlet. The compilation was done by Dr. M. A. Blanco.

Serum and Vaccine Institute at Naples.—Prof. I. Bandi has been placed in charge of the newly opened institution at Naples for production of therapeutic serums and vaccines and as a center for research in hygiene and biology, with special regard to colonial conditions.

The Argentine Medical Association.—A recent three-day meeting at Buenos Aires of this association was devoted to brain tumors. The differential diagnosis was presented by Drs. Castex, Alurralde, Borda, Chiappori and Houssay, the operative treatment by Segura, Palma and Finochietto, while D. J. Cranwell spoke on echinococcus disease of the brain.

Deaths in the Profession Abroad.—E. Delens, *agrégé* professor of ophthalmology at the University of Paris until retirement, aged 78.——**A. J. F. Dastre,** chief of the laboratory for animal physiology at the University of Paris, killed in an automobile accident. From recent casualty lists, British: Surg. **A. E. Panter,** Capt. **W. R. Aspinall** (Australian), Lieut. **J. F. Elliott,** Asst. Surg. **A. R. Underwood,** Lieut. **R. F. Hiley,** Capt. **F. Hardie,** Capt. **R. L. Henderson** (Australian). Italian: Lieut. **G. Maccia;** Capt. **E. Boeri,** Lieut. **G. Polcher,** Lieut. **S. Redaelli,** Capt. **G. Castornio,** Capt. **C. T. Aurelio,** Lieut. **B. Gallotti.**

Medical Supplies in India.—Madras is the center for government medical supplies in India. Since the outbreak of the war, the manufacture and preparation of drugs has been centered in that city. Until 1912, Calcutta had been the manufacturing place, but it has been converted into a distributing center, as has been the case also with Rangoon. At Bombay certain stores have been specializing in the manufacure of surgical instruments. It is expected by the director of stores in Madras to make disinfectants, especially those of the phenol group, emetin, and starch from rice. Castor oil is manufactured and the possibilities of making glycerin are being investigated. It is proposed also, according to *Commerce Reports,* to increase the production of field dressings, bandages, etc. Quinin is now manufactured at Nilgiris and the Indian government medical service at Simla has completed inquiries regarding the increased cultivation of cinchona in Bombay, Madras, Burma and other provinces.

Shortage of Physicians in Great Britain.—Comment in the *British Medical Journal* (Sept. 29, 1917, p. 428), shows that for the next few years the annual output of physicians from the British medical schools will fall below the normal annual decrease in times of peace. The shortage of physicians will be even more marked hereafter owing to the pressing demands of the army service and the casualties resulting in that service. The normal annual decrease in the number of physicians is placed at 900. Figures collected recently show that only 900 men each year are due to qualify in 1917 and 1918. The shortage will be still more serious in 1919, 1920 and 1921 when, respectively, only 519, 800 and 700 physicians are due to qualify. It is said that the supply of physicians for the need of the civil population has already been reduced to the minimum consistent with safety. All the new additions to the ranks of the medical profession are to be at once requisitioned for army medical service so that there will be no reserves to make up the annual depletion from deaths and retirement from practice. The outlook both for civil and army medical services in Britain, therefore, is quite unsatisfactory. Even the demobilizing of medical students now in the ranks so they can return to the medical schools and complete their training, a measure now being planned, will fall considerably short of meeting the requirement.

PARIS LETTER

PARIS, Sept. 13, 1917.

The War

AUTOCHTHONOUS MALARIA

Drs. Victor Raymond and Grysez have communicated to the Réunion médico-chirurgicale de la III-e Armée their observations of four patients who entered the hospital presenting the following symptoms: fever of short duration, the temperature falling to normal subsequently, with febrile paroxysms recurring from day to day, without definite periodicity, and of several hours' duration. In the interval there was a slight degree of anemia without any gastro-intestinal disturbance, no pain in the tibias, but always a very marked hypertrophy of the spleen. The symptoms would at first lead one to think of malaria, but none of the four patients seen had ever been outside of France, nor did they ever have any intermittent fever; they came from nonmalarial districts, two from Paris, one from the department of Basses-Pyrénées and one from the department of the Marne. In three of these cases the blood was examined at the beginning of the febrile attack. In all three a hematozoon was found. This parasite was that of benign tertian fever, *Plasmodium vivax:* gre-

gariniform, with rosettes having sixteen nuclei, oval gametes, Schüffner's grains; no crescents. The affection is benign, and the febrile paroxysm may be suppressed by means of quinin, given by mouth, in doses of from 1.5 to 2 gm. for three successive days. Inquiry established the fact that the disease originated in one corps which had been stationed for many weeks in an inundated district abounding in mosquitoes. The members of this corps had all been stung many times by these insects. The examination of a certain number of mosquitoes gathered from that region showed that 7 per cent. were *Anopheles*. The corps in which these cases occurred had been preceded in that section by a native regiment, and some weeks previously it had received an increment of some size consisting of repatriates from Saloniki, many of whom presented relapses of malaria. It is a question, therefore, whether this is not to be regarded as a small focus of autochthonous malaria, because the region in which these cases appeared was free from malaria before the war. It is better, perhaps, to assume that the repatriates from Saloniki played the rôle of virus reservoirs or carriers. Dr. Abrami has stated that benign tertian malaria and its parasite, the *Plasmodium vivax*, have occurred frequently at Saloniki this year, and that the small percentage of *Anopheles* explains the small number of cases observed.

NO FURTHER EXEMPTION FOR PHYSICIANS ON THE GROUND OF PHYSICAL UNFITNESS

The undersecretary of state of the Service de Santé militaire has made known, by means of a circular, that there is to be no further exemption of medical men on the basis of physical unfitness. Hereafter, every doctor who is called into service will be utilized as far as his physical unfitness will permit.

PRACTICE OF CIVIL MEDICINE BY THE MOBILIZED PROFESSION

M. Chassaing, having demanded of the ministry of war (1) whether in the zones of the armies the physicians of a unit stationed in a locality unprovided with civil physicians are obliged to give their services to the civil population, or whether they may choose to do so; (2) whether they must visit the civilian sick in localities other than the one in which their cantonment is situated; (3) if they have the right to ask for transportation to patients residing at some distance, and if, in the course of such transport, there occurs an accident, will the case be considered as having occurred in the line of duty; (4) if they have the right to demand or expect an honorarium, received the following reply:

"The regulation relative to placing the army medical man at the disposal of communities unprovided with physicians not mobilized is applicable in the army zones as in the interior. The army physicians so detached ought to be called from the personnel of the region and not from any sanitary formations on duty in that region. However, the surgeons in chief of such sanitary formations may place their personnel at the disposal of civilians who are without medical service in the absence of physicians detached by the directors of this region. Under the circumstances, it is well to understand that service is assured by the medical personnel of the army under the same conditions as by the personnel of the region, that is to say, gratuitously, and if necessary, means of transportation are to be placed at their disposal by the municipal authorities. In the case of accidents occurring in the course of this detail or absence on such service, these medical officers are considered as being in actual service."

CREATION OF A COMMITTEE ON CHEMICAL PRODUCTS

The minister of commerce has appointed a committee to investigate the sale and manufacture of chemical products, coloring agents, pharmaceutical products, photographic materials, perfumes, etc. This committee is charged to determine, centralize, coordinate or control the needs of the state and of the public; to provide means to meet, in the best manner possible, the needs of the nation; to secure rational utilization of the resources of the country; to satisfy the demands of home as well as of foreign trade; the sale and transport and manufacture, the importation, the exportation and the composition of stock. So far as concerns the industries utilizing reserve materials, particularly for national defense, the committee has fixed and proposed to the proper ministry: the monthly allotment of materials placed at the disposition of private industries; the prices of materials and products given up by the state, and the prices and the conditions of sale and consumption of products manufactured by the private industries from materials and products given up by the state.

WINE RATION OF THE SOLDIERS

The minister of food control (ravitaillement), in accord with the ministry of war, has decided to increase the soldiers' daily wine ration to 0.75 liter. This had previously been fixed at 0.5 liter. The measure becomes effective, Jan. 1, 1918.

A Home for American Students in Paris

The municipal council of Paris has offered to the universities of the United States ground on which to construct a home for American students. This territory is about 1,000 meters square, and is situated on the Champ-de-Mars. Building operations will be begun shortly, thanks to the efforts of Mr. James Hyde, originator of the idea of this foundation; to Prof. Barrett Wendel, president, and to Mr. Bliss, secretary of the committee resident in New York, which will raise the necessary funds by subscription. The committee has already received a number of gifts. Ere long, the American students who, year after year, come to France in rather large numbers, will have in Paris a large establishment, appointed in the most modern style, where they will be entirely at home.

Death of Dr. Jouty

Dr. A. Jouty, otolaryngologist of the municipal hospital of Oran, died at Lyons from fulminant septicemia, the result of an accidental infection. He has been in continuous service since the beginning of the war, first at Oran, then at Bel-Abbès, and finally at Lyons, where he had charge of a special service.

LONDON LETTER

LONDON, Oct. 8, 1917.

The War

THE AIR RAIDS

During the harvest moon, London has endured an unprecedented succession of air raids—six in eight days. They commenced soon after sunset and lasted from one to three hours. The enormous development of the defenses enabled a heavy barrage fire, appalling to witness, to be maintained almost continuously for as long as an hour when necessary. The roar of the guns was so continuous as to suggest the working of some gigantic machinery. Thanks to the effectiveness of the barrage, only one or two of the raiders, whose number on each occasion is estimated at about twenty machines, got through. The casualties were therefore few. Ample provision had been made to deal with them by organizing ambulance parties in every district of the metropolis. The danger to those in the open air was really greater from our own shrapnel, which in some districts dropped like rain. But on receiving the warning of the approach of the raiders, the public quickly took cover in the basements of houses, or in buildings that offered special protection. The underground tube stations were ideal places of refuge and were crowded, principally by foreigners. The mental effect produced on the majority of the English people was very different from that calculated on by the Hun, with his usual ignorance of the psychology of other races. Of terror or panic there was very little, and this was almost confined to women anxious about their children. The predominant feeling was intense anger that German cities were not subjected to the same experience. Indeed, this feeling has at last forced the government to announce that German cities will be raided. Unlike our barbarous foes, we shall as far as possible spare women and children by attacking munition works and other military objectives.

AN AMERICAN HOSPITAL OPENED IN LONDON

Dr. Page, United States Ambassador, has opened St. Catherine's Lodge, Regents Park, as a hospital for American and British officers. The house with grounds of about 4 acres has been equipped for forty patients by Mr. and Mrs. William Salomon of New York, owners of the lease, who will maintain it for the duration of the war. It is controlled by the London chapter of the American Red Cross, and is the first American Red Cross Hospital established in Europe. It is fitted to accommodate orthopedic patients. Two of the American orthopedic surgeons who came to this country under the command of Major Goldthwait of Boston, and are attached to the Sheperd's Bush Military Orthopaedic Hospital, Capt. E. Kidner of Detroit and Capt. de Forrest Willard of Philadelphia, have been chosen as the nucleus of the medical unit under the supervision of Col. Sir Robert Jones. The nursing staff will be American. For work other than orthopedic, some of the most eminent London physicians and sur-

geons have offered their services. Dr. Page said he had to acknowledge the great generosity of the donors. It was gratifying to find the work of the American Red Cross well started in London. The hospital differed from others in that it would give orthopedic treatment to officers. He was told that 70 per cent. of cases yielded to the treatment which had been developed under the leadership of Sir Robert Jones.

AUSTRALIAN PHYSICIANS DECIDE FOR CONSCRIPTION

The members of the British Medical Association in Australia have replied to the question whether they desire conscription of the medical profession in Australia for service at home and abroad. Out of a total of 1,361 votes, 1,011 were given in favor of conscription—a majority of practically 75 per cent. The voluntary system has achieved great results, but they are not now adequate to the requirements of the army. Under it nearly 1,000 physicians out of a total well under 3,000 relinquished their practices and proceeded overseas with the expeditionary force. In addition, 400 undertook military service in the commonwealth. Of those that went to the front, the number who have given their lives amounts to fifty, a proportion greater than that of the combatant troops.

The Health of Schoolchildren

Sir George Newman, chief medical officer of the board of education, has published his annual report for 1916. He states that the fact must be faced that in 1916, as in former years, the records show a large amount of ill health and physical and mental defect. A year ago a moderate computation yielded not less than a million children of school age as being so defective or diseased as to be unable to derive reasonable benefit from education. What is needed is an effective unification of all the powers having for their purpose the healthy upbringing of youth. In addition, it is essential that the local education authorities should have continually before them a clear view of the steps necessary to secure the full value of the school medical service to every child of school age in their area. He considers that the irreducible minimum that will yield the results the nation requires is as follows: 1. Every child shall periodically come under direct medical and dental supervision, and if found defective shall be "followed up." 2. Every child found malnourished shall, somehow or other, be nourished; and every child found verminous shall, somehow or other, be cleansed. 3. For every sick, diseased or defective child skilled medical treatment shall be available, either by the local education authority or otherwise. 4. Every child shall be educated in a well ventilated schoolroom or classroom, or in some form of open-air schoolroom or classroom. 5. Every child shall have daily organized physical exercise of appropriate character. 6. No child of school age shall be employed for profit except under approved conditions. 7. The school environment and the means of education shall be such as can in no case exert unfavorable or injurious influence on the health, growth and development of the child. Dealing with the care and training of children under the school age, that is, under 5, the report states that their physical and mental well-being is not adequately provided for. The view is expressed that eventually it may be thought desirable that they should be educated on the lines suggested by the Consultative Committees for Nursery Schools.

The importance of dental disease is becoming more evident to the educational and military authorities concerned. So widespread is oral sepsis, and ill health directly due to the bad condition of the teeth, that great national efforts must be made to deal with the problem. The school is the place, and childhood is the time to intervene. A chapter is devoted to the benefits that are derived from an open-air life. It is estimated that there are not fewer than 600,000 children for whom the best possible treatment is an open-air school, and the need for the extension by authorities of their present facilities for open-air education is stated to be urgent.

The teaching of mothercraft is also dealt with. It is laid down that if the schoolgirls of this generation are to become wise mothers of the next, they must be taught the elements of mothercraft. The teaching of mothercraft may be divided into three periods: (1) instruction to the older girls at the elementary schools; (2) instruction to girls from 14 to 18 years old, and (3) instruction to married women. Where introduced, the teaching of mothercraft is declared to be satisfactory and practical; but the schools in which it is in operation are far too few; and apart from isolated lessons given during training in housewifery, etc., local education authorities have done almost nothing to encourage the general introduction of this teaching throughout all schools in their areas.

In regard to physical education, Sir George Newman remarks that there is an increasing recognition of its value. The problem before the board of education has heretofore been relatively narrow, namely, to lay the foundations of a system of physical training throughout public elementary schools and encourage its development in secondary and continuation schools. Now their field of action is likely to be enlarged. The work hitherto accomplished must be strengthened and established, and if, as is hoped, all children remain at school till at least 14, the teaching of physical exercises in the public elementary school can be expanded and more satisfactorily carried out than when any children leave at the age of 12 or 13.

The control of juvenile employment is considered in all its aspects. Through the history of child labor, the dominant evil is not accidents, or poisoning, or deformities, or specific disease, but the stress and fatigue of the immature body due to long and unsuitable hours of occupation. The only remedies are that (*a*) no child under 14 shall be exempted from education, half-time, or whole-time, for purposes of employment for profit; (*b*) no child attending school shall be employed out of school hours except at prescribed hours and for prescribed periods, and (*c*) the employment of all young persons from 14 to 18 should come under the medical supervision and control.

Marriages

LIEUT. CHARLES HYATTE CHERRY, M. R. C., U. S. Army, Fort Riley, Kan., formerly of Chisholm, Minn., to Miss Rebecca O. Jacobs of Topeka, Kan., recently.

LIEUT. WILLIAM LYTLE ROSS, JR., M. R. C., U. S. Army, Garden City, Long Island, N. Y., to Miss Ethel Jeanette Nixon of New York City, October 6.

LIEUT. JOHN ANDREWS ROGERS, M. R. C., U. S. Army, Nashua, N. H., to Miss Edith Pearl Batchelder of Framingham, Mass., September 8.

PAUL EMERSON GILMOR, M.D., a medical missionary in the Egyptian Sudan, to Miss Esther Margaret McCracken of Pittsburgh, September 5.

LIEUT. EDWARD FOULKE CORSON, M. R. C., U. S. Army, to Miss Esther Bisler, both of Philadelphia, in Chicago, October 15.

LIEUT. DANA BYRON DISHMAKER, M. R. C., U. S. Army, to Miss Olga Bertha Haney, both of Kewaunee, Wis., October 20.

LIEUT. FAY J. ERNEST, M. R. C., U. S. Army, Topeka, Kan., to Miss Edith Knox of Topeka, in Kansas City, July 23.

FREDERICK YATES, M.D., Washington, D. C., to Mrs. Mary Estelle Archer of Chevy Chase, Md., September 20.

WILLIAM ARMITAGE MONCRIEFF, M.D., to Miss Beryl Stuart Smith, both of New Bedford, Mass., September 29.

ASST. SURG. MATTHEW F. CZUBAK, U. S. Navy, to Miss Rhoda Evans Gilles of Philadelphia, August 30.

JOSEPH RAOUL LAROCHELLE, M.D., to Miss Jeannette R. Roussin, both of Biddeford, Me., October 8.

JOHN A. RAGONE, M.D., Buffalo, N. Y., to Miss Margherita Agnes Tirendelli of Cincinnati, October 3.

SUSAN ANDERSON, M.D., Fraser, Colo., to Mr. George Schaus, at Prescott, Iowa, October 10.

AMOS JOHN WINKEL, M.D., to Miss Helen Leigh Hunt, both of Hamburg, N. Y., October 13.

DAVID THOMAS HEYSER, M.D., Emad, La., to Miss Ola Manning of Kinder, La., October 3.

PHILIP B. NEWCOMB, M.D., Bangor, Me., to Miss Dorothy Williford in New York, October 1.

THOMAS H. GILLAND, M.D., Greencastle, Pa., to Miss Daisy B. Daley of Baltimore, October 17.

GEORGE MILBRY GOULD, M.D., to Miss Laura Stedman, both of Atlantic City, N. J., October 3.

HERMAN LUCAS EARL, M.D., Jewell, Ga., to Miss Ella Berry of Sparta, Ga., October 9.

CLARK JAY STEVENS, M.D., Rockville, Ind., to Miss Roxie Parker, at Chicago, October 17.

RUSSELL J. MURDOCH, M.D., to Miss Ruth M. Palmer, both of Blair, Neb., October 3.

GEORGE ALFRED FELCH, M.D., to Miss Janey E. Little, both of Boston, October 4.

Deaths

Richard Halsted Ward, M.D., Troy, N. Y.; College of Physicians and Surgeons in the City of New York, 1862; aged 80; a Fellow of the American Medical Association and American Academy of Medicine; a member of the Royal and Belgian microscopical societies; acting assistant surgeon in the Army during the Civil War; instructor in botany in 1867, and lecturer and professor in histology and microscopy in the Rensselaer Polytechnic Institute, Troy, from 1869 to 1872; governor and first vice president and chairman of the medical board of the Marshall Infirmary and Sanitarium since 1868; notable as a research worker in economic botany and microscopy and as an expert in microscopy; an honorary member of many foreign societies; died at his home, October 29.

LeGrand Atwood, M.D., Ferguson, Mo.; Washington University, St. Louis, 1849; aged 85; a member of the Missouri State Medical Association, and a life member of the St. Louis Medical Society, and president in 1885; surgeon in the Confederate Service during the Civil War; superintendent of the St. Louis Insane Hospital from 1886 to 1891, and of State Hospital for the Insane, No. 1, Fulton, in 1891 and 1892; lecturer on therapeutics and toxicology in St. Louis Medical College, and lecturer on nervous diseases in the Marion-Sims Hospital College, St. Louis; died at his home, August 2.

Robert Watts, M.D., New York; College of Physicians and Surgeons of the City of New York, 1861; aged 80; a member of the Medical Society of the State of New York; surgeon of the One Hundred and Thirty-Third New York Volunteer Infantry during the Civil War; consulting gynecologist to the Roosevelt Hospital, and consulting physician to the City and St. Mary's Children's hospitals; died at his home, October 15.

Charles Forbes, M.D., Rochester, N. Y.; College of Physicians and Surgeons in the City of New York, 1871; aged 73; for many years an instructor in natural science; a research worker especially in photography and electricity; inventor of the individual communion cup, in 1894; and more recently, of a gauze bandage, drain, and sponge roller; died in the Rochester General Hospital, October 2.

J. Homer Darling, M.D., Thompsonville, Conn.; Castledon, Vt., Medical College, 1859; aged 79; assistant surgeon of the Fifty-First Massachusetts Volunteer Infantry; and Acting Assistant Surgeon, U. S. Navy, during the Civil War; once president and for several terms a member of the local school board; died at his home, October 18.

Stephen Cassin Spalding, M.D., Shenandoah, Pa.; University of Maryland, Baltimore, 1870; aged 73; formerly a member of the Medical Society of the State of Pennsylvania; a director of the Citizens' Building and Loan Association and Shenandoah Mutual Fire Insurance Company; died at his home, October 11.

John Frank Simison, M.D., Romney, Ind.; Rush Medical College, 1881; aged 58; township trustee in 1885 and 1887, and a member of the legislature in 1907 and 1909; for many years a trustee of DePauw University; died in St. Elizabeth Hospital, Lafayette, October 15, a week after an operation for appendicitis.

Herbert M. Burritt, M.D., Hilton, N. Y.; University of Buffalo, N. Y., 1901; aged 44; formerly a member of the Medical Society of the State of New York; at one time health officer of Hilton; died in the Park Avenue Hospital, Rochester, N. Y., October 11, from pneumonia complicated by diabetes.

William R. Scott, M.D., Portland, Ore.; Jefferson Medical College, 1906; aged 38; formerly a member of the Oregon State Medical Association; was found dead at his Helix ranch, October 12, from the effects of a gunshot wound of the head, believed to have been accidentally self-inflicted.

Chauncey W. Chidester, M.D., Newark Valley, N. Y.; College of Physicians and Surgeons, Chicago, 1886; aged 70; formerly a member of the Medical Society of the State of New York; for many years coroner of Tioga County; died at his home, August 16, from arteriosclerosis.

James R. Edwards, Denton, Texas (license, Texas, years of practice, act of 1907); aged 77; a practitioner for fifty-six years; formerly a member of the State Medical Association of Texas; at one time health officer of Denton County; died at his home, October 12.

Floyd S. Farnsworth, M.D., Plattsburg, N. Y., Hahnemann Medical College, Philadelphia, 1885; aged 59; a member of the Medical Society of the State of New York; died at the home of his niece in Troy, N. Y., October 12, from cerebral hemorrhage.

Amos Avery Rittenour, M.D., Denver; George Washington University, Washington, D. C., 1900; aged 42; formerly a member of the Medical Society of Virginia, and a resident of Berkeley; died in the Sarah Leigh Hospital, Norfolk, Va., October 10.

Harvey W. Scales, M.D., Yorktown, Iowa; Medical College of Ohio, Cincinnati, 1879; aged 62; formerly a Fellow of the American Medical Association; a member of the Iowa State Medical Society; was found dead in his room, October 13.

James Daniel Hewett, M.D., New York City; New York University, New York City, 1868; aged 84; assistant surgeon of the Sixty-Sixth New York Volunteer Infantry, and later major; died at his home, October 13.

Daniel W. Owens, M.D., Mosheim, Tenn.; University of Tennessee, Nashville, 1890; aged 57; formerly a member of the Tennessee State Medical Association; died at his home, July 25, from Pott's disease.

Thomas Evans Elliston, M.D., Nashville, Tenn.; Vanderbilt University, Nashville, 1880; for six years a member of the Davidson County Court; died at his home, October 17, from cerebral hemorrhage.

William Ross, M.D., New York City; New York University, New York, 1894; aged 54; formerly a member of the staff of the New York and Bellevue hospitals; died at his home, October 18.

John Myrick Crocker, M.D., Cambridge, Mass.; Harvard Medical School, 1866; aged 72; a Fellow of the American Medical Association; died at his home, October 6, from heart disease.

Henry Julius Cohen, M.D., Brooklyn, N. Y., Cornell University, 1909; aged 29; died in the Methodist Episcopal Hospital, Brooklyn, October 18, after an operation for appendicitis.

Edwin Gillard, M.D., Sandusky, Ohio; Homeopathic Hospital College, Cleveland, 1872; aged 72; once professor of gynecology in his alma mater; died at his home, October 14.

Robert Burnsides Ferree, M.D., Pittsburgh, University of Pittsburgh, 1887; aged 54; a member of the Medical Society of the State of Pennsylvania; died at his home, October 15.

Samuel Ensign, M.D., Arborville, Neb., Geneva, N. Y., Medical College; aged 98; for many years a pharmacist; died at his home, August 19, from cerebral hemorrhage.

John F. Spencer, M.D., Moore's Hill, Ind.; Eclectic Medical Institute, Cincinnati, 1869; aged 75; a veteran of the Civil War; died at his home, October 1, from heart disease.

Berzelius D. W. Thompson, M.D., Sardinia, Ohio; Cincinnati College of Medicine and Surgery, 1886; aged 79; died at his home, July 23, from carcinoma of the liver.

John B. Marchard, M.D., Monticello, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1882; aged 75; died at his home, September 4, from diabetes.

J. A. Bickett, Maryville, Mo.; a practitioner since 1866; aged 79; a veteran of the Civil War; died in a hospital at Leavenworth, Kan., September 21.

Theresa G. Breene Baum, M.D., Oil City, Pa.; University of Pittsburgh, 1910; aged 38; died at her home, August 5, after an illness of two years.

William Patrick Honan, M.D., Chicago; Bennett Medical College, Chicago, 1914; aged 30; died at his home, October 25, from heart disease.

Frederick Briggs Quackenbush, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1901; aged 50; died at his home, October 6.

Leander James Crooker, M.D., Augusta, Me.; Dartmouth Medical School, Hanover, N. H., 1871; aged 80; died at his home, October 10.

William F. Clayton, M.D., Overlea, Md.; College of Physicians and Surgeons, Baltimore, 1906; aged 35; died at his home, October 12.

Jerome P. Marvin, M.D., Harrison, Ohio; Eclectic Medical Institute, Cincinnati, 1866; aged 71; died at his home, October 12.

David M. Ray, M.D., Bernie, Mo.; University of Tennessee, Nashville, 1878; aged 71; died at his home, about September 29.

Wade Minor Logan, M.D., Cincinnati; Miami Medical College, Cincinnati, 1869; aged 69; died at his home, October 11.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SECRECY IN PATENT MEDICINES

One Concern Proves That the "Open Formula" Does Not Spell Ruin

THE JOURNAL has long insisted that one of the greatest evils connected with the "patent medicine" business is the element of secrecy. Practically every "patent medicine" manufacturer leads the public to believe, either by direct statements or by implication, that his preparations possess some marvelous and esoteric powers—due either to a peculiar combination of well-known drugs or to the presence of some mysterious drug about which the rest of the world is ignorant —not to be found in official products or in unofficial products made by competitors. Such claims, of course, are the sheerest humbug. There is not a "patent medicine" on the market today whose place could not better be taken by some official drug or combination of drugs. So long, however, as "patent medicine" manufacturers sell names instead of drugs it is possible for them to "get away with" claims that would be laughed to scorn if the element of mystery were eliminated.

It is for this reason that the nostrum makers declare that to give to the public the names and amounts of the therapeutically active drugs in their products would spell financial ruin. In many cases it doubtless would, but not for the reason assigned by those making the claim. It would destroy business in those cases in which even the nontechnically trained layman would recognize the absurdity of claims made for simple mixtures of well-known drugs.

One of the spokesmen for the "patent medicine" interests has said:

". . . it is practically impossible to prove that the therapeutic claims made for a preparation whose composition is not known are 'false and fraudulent.'"

This same spokesman declared that should "patent medicine" manufacturers be forced to make their formulas public "they will be supplying evidence which may result in their own undoing."

When the public prescribes for itself it has the right to know what it is prescribing. If it cannot be given this obvious prerogative without destroying an industry, then that industry should be destroyed. The facts are, of course, that no "home remedy" having any legitimate place in commerce would be destroyed by such a course, although it would, doubtless, do much to wipe out of existence the fakes, frauds and humbugs with which the public is at present afflicted.

These facts are suggested by a letter recently received from the manager of a "patent medicine" concern. This letter so completely refutes many of the misstatements made by the exploiters of fraudulent nostrums that we print it in full. It is worth reading:

"*To the Editor:*—Let me introduce myself, first of all, as the Treasurer and General Manager of the J. C. Ayer Company, of Lowell, Mass. I come asking the privilege of placing before your readers the marked changes that have taken place during the past few years in the methods of conducting the business of this company in every state of the Union.

"Some twenty years ago I was first placed in charge of said business, although I had known of it ever since my earliest recollection. Even at this beginning I had been a physician for twenty-five years and so became at once keenly aware of the fact that certain changes could be made to the benefit of the public, and then, of course, to the benefit of the company.

"While a number of changes were made at once, it was only about ten years ago that the first radical change took place, namely, when we published our full and complete formulas on all the printed matter, cartons, bottles and boxes of medicine, said change having been continued to this very day. It is interesting to know that the Canadian government ruled that because of said publication of formulas we were entirely exempt from its Patent Medicine Act.

"Another change, equally important at least, was made about that same time, when we placed on the market all our medicines entirely free from alcohol. This change was made because we believed, with all our might, that alcohol is a poison too powerful and too dangerous to be used as a medicine unless under the direction of a physician. Right here let me add that there is nothing secret about this; we percolate according to standard methods, recover the alcohol by distillation, and lastly add the glycerine.

"Then came the hard problem of advertising, with its constant tendency to exaggerate and thereby to mislead. A weak advertisement always reads to me like bibble-babble, while an extra strong one too often shows that the writer has been carried to dizzy and dangerous heights! So it was decided, about three years ago, to discontinue all newspaper advertising, leaving only the *Almanac* through which to make announcements to the public.

"Probably it is asking altogether too much of the busy editor to read some of the more recent editions of said *Almanac*, but it is certainly true that in writing them it has ever been my earnest effort to write in a more and more conservative way, with the thought that I, as a physician, was especially bound to use my knowledge in every possible way to advance the interests of the public health. I have also endeavored to completely eliminate everything that would have a tendency to make the well man think he was sick or the sick man think he was sicker; at the same time giving a good amount of practical every-day hygiene. One result is that our 1918 *Almanac* is quite a different affair from those of my earlier efforts.

"But there were other changes needed. So about two years ago we omitted all kinds of literature accompanying our medicines; no pamphlets, no leaflets, no circulars, practically no printing whatever except the formula and dose on bottle, box and carton.

"Such changes naturally bring up the question of the effect on the pocketbook. I can only speak for this company, and say that we are still pursuing these same methods with increased vigor and find them more and more satisfactory. Indeed, we have never once had the slightest idea of turning back to the tallow-candle age! Some people seem to forget the brilliant period in which we are living, with its remarkable common school system, good literature, cheap postage, extensive trollies, telephones, and so on, whereby even the most remote districts in the country are brought in closest contact with the very center of our largest cities. The old-time mystery is fast disappearing as the new-time education penetrates the darkness.

CHARLES H. STOWELL, M.D., Lowell, Mass."

Dr. Stowell was graduated by the University of Michigan Medical School in 1872. In printing his letter THE JOURNAL is not to be understood as endorsing the preparations of the J. C. Ayer Company, but it does endorse the business principles shown by the company. The formulas for some of the Ayer preparations are needlessly complex and of the shotgun-mixture type; however, not more so than some of the preparations in the Pharmacopeia and National Formulary. If ever mixtures of the shotgun type are excusable, it may be when such are used as home remedies that are taken without a real diagnosis—a rifle is of little use against an obscure mark!

The important points brought out by this letter, however, are that "patent medicines" without alcohol or other habit-forming drugs can be advertised with comparative conservatism and the public given detailed information regarding their composition and the company marketing them still flourish.

Correspondence

PROPOSED INVESTIGATION OF TRAINING AND OPENINGS FOR CRIPPLED SOLDIERS

To the Editor:—I have noted with interest several articles in recent issues of THE JOURNAL dealing with the general subject of occupations and training for the physically handicapped. It occurs to me that you may desire to be of some assistance to the Bureau of Vocational Guidance in a proposed survey of this field.

In cooperation with several organizations of national importance, we are considering an investigation of training and possible industrial openings for crippled soldiers and others who are physically handicapped. Our work would probably culminate in a publication dealing with the methods of reeducation used both in the United States and abroad, an account of the general occupations open to each class of the handicapped, and an intensive study of actual opportunities in some one section of the country, probably New England and some of the neighboring states. Funds will probably be available for investigation and publication.

Can you inform us of any other investigations of like character now going on, or can you give us the names and

addresses of individuals or associations who would be likely to cooperate with us, or furnish us valuable information?

Any suggestion that you care to make regarding such an investigation, as to either method or scope, will be gladly received.

Please be assured that we will be very grateful for any assistance you may be able to render.

ROY W. KELLY.

Director, Bureau of Vocational Guidance, Harvard University, Cambridge, Mass.

STANDING OF ENGLISH MEDICAL WOMEN IN WAR WORK

To the Editor:—I am enclosing a copy of a letter received from Flora Miller, director in charge, Military Hospital, Endell Street, London, in reply to a request for exact information regarding the standing of the English medical women in the war work. As it is the first definite news that we have been able to obtain on this subject, we think it would be of interest to the public, and so ask you to reproduce it in THE JOURNAL.

LOUISE B. DEAL, M.D., San Francisco.

Secretary, Organization of Women Physicians for Federal Recognition.

In reply to your letter to Dr. Garrett Anderson, I have pleasure in giving you the following facts about the employment of women doctors by the War Office.

The medical staff of this hospital is appointed by the War Office, and has entire charge and control of the hospital. The staff is graded and paid according to rank, namely, as Major, Captain or Lieutenant. None of us are commissioned, as a commission cannot be held by women under the present Army act of Great Britain, and as women cannot be attested or sworn in under that act.

We are given the position of officers with the pay and allowances of R. A. M. C. officers. In other military hospitals many women are employed. Some of these are graded and paid according to rank as we are here. Others are engaged as civilian practitioners at a flat rate of 24 shillings [$5.76] a day without uniform or other allowances. It should be noted that there are men doctors in military hospitals engaged on these terms also. Men so engaged are ineligible for general military service, and the War Office has a habit of regarding women as also ineligible for general service.

Our staff here has certain privileges. It is permanent and cannot be moved about by the War Office, and each member except Dr. Garrett Anderson and myself has an opportunity of terminating her appointment every six months.

WHAT FACILITIES DO HOSPITALS AFFORD FOR THE RECEPTION OF SPECIAL INTERNS?

To the Editor:—A committee representing all the associations of otolaryngologists on this continent has been at work for some years, in the endeavor to standardize the training of those who desire to enter on this specialty.

In contradistinction to the ophthalmologists, the committee is not proposing an examination for license by a federal board, but favors the obtaining of a special degree, D.Sc. (Otolaryngology), from the postgraduate departments of leading universities, on examination, after the completion of a definite course of training: (1) as an intern of a standard hospital in medicine, or surgery, or both, or a term of years in practice; (2) as intern in the otolaryngologic department of a standard hospital, for eighteen months, and (3) the attendance on a short course in such subjects as special anatomy, embryology and histology, physiology, pathology and bacteriology, neurology and physics in the postgraduate department of the university conferring the degree.

In order to be in a position to lay the scheme before the postgraduate boards of study of the universities, for their consideration, the committee must be informed what facilities are afforded by the hospitals of the continent, for the reception of special interns:

1. The total number of beds in each hospital.
2. The number of these set apart for otolaryngologic patients.
3. Whether these are under a departmental head.
4. Whether there is an intern set apart for this department.
5. The regulations regarding the intern service: Is there: (*a*) a rotation service; (*b*) a lengthy period confined to one department, or (*c*) a graduated term of service—juniors and seniors, etc.?

It hardly needs to be pointed out that should such a scheme as outlined above be brought into operation and be supported by the leading special and general hospitals, such hospitals would be insured a constant succession of satisfactory material, out of which to man the department of otolaryngology with responsible and earnest interns.

The first condition laid down above would make it reasonably certain that the interns in question would be possessed of a sound basic training, and with these, entrance on the special training of otolaryngology would be in no sense an experiment, but a deliberate investment of time, determined on after mature thought.

Moreover, when a rotation system of internship is in operation, the scheme outlined above would not interfere. The rotating intern would still take on the otolaryngologic service for six weeks or two months, acting in the capacity of junior on the service, and receiving much help from the chief intern.

Information as to the number of hospitals which have a regular department of otolaryngology is difficult to obtain. Any general hospital of 250 beds should have at least fifteen beds set apart for such patients, and these would occupy the full time of a houseman, provided he worked also in the outpatient service.

Any information which your readers can supply will greatly assist and will be appreciated.

On behalf of the committee,

D. J. GIBB WISHART, Toronto, Chairman.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE PARESIS OF GUY DE MAUPASSANT

To the Editor:—I desire to know from a neurologic point how De Maupassant is classed. It occurs to me that by reason of the trend in his writings he must have been a sensualist, if not a sexualist, as much that he writes deals with this phase of human frailty. The fact that he died insane leads me to think that he was suffering from some type of sexual perversion. I shall be greatly obliged if you will direct me to the proper source for this information, if such is extant and available.

E. B. HARDIN, M.D., Florence, Ala.

ANSWER.—Guy de Maupassant (1850-1893), the master of the short story, was of Norman extraction, and grew up around Rouen. In his youth he became a clerk in the Ministry of the Marine at Paris, in which he was but an indifferent employee, spending his time on the river as a *canotier*, or in learning the art of novel-writing with Gustave Flaubert. The latter, as Maupassant has testified, taught him to cultivate the faculty of vision as a means of attaining impeccable accuracy of statement, and conciseness of style, so that any object, from a pile of dirt to a human being, might be visualized in a few words. On the development of this faculty, his success as a writer of tales and travel sketches was based. He became the O. Henry of Paris, with the difference that the sexual side of life was glaringly emphasized in Maupassant's stories, a circumstance that added not a little to the success of his books. In personality, he was really a faun with sensual features and Crô-Magnon jaw, the sort of man who would brazenly take leave of companions in the street or on the river in order to visit a bagnio or a waterside brothel. He delighted in obscene effrontery, particularly in shocking high officials or functionaries of the government in the street or a railway station, by vociferating foul-mouthed expressions in a loud and offensive manner. He had a neurotic heredity, and during the last four years of his life developed all the symptoms of a general paralysis, the result of sexual dissipation, the abuse of drugs, and probable syphilitic infection. He attempted suicide in 1892, and died under painful circumstances, July 6, 1893.

Much has been written about the neurotic heredity and insanity of Maupassant, in particular, the Toulouse dissertation of Z. Lacassagne (La folie de Maupassant, Toulouse,

1907, No. 717); G. Vorberg's brochure, "Guy de Maupassant's Krankheit" (Wiesbaden, 1908); the study of L. Lagriffe (*Ann. méd.-psychol.*, 1908, Series 9, **8**, 203, 353; 1909, **9**, 5, 177), and the article by A. Lacassagne in *Archives d'anthropologie criminelle*, 1910, **25**, 104. The best paper is that of Maurice Pillet (Le mal de Maupassant) in *Aesculape* (1913, **3**, 138, 167, 180, 217), which is profusely illustrated and has specimens of Maupassant's handwriting in his paretic period. The breakdown of his mind was attended by migraine, melancholia, obsessions, perversions, hallucinations and violent outbreaks of erratic, ill tempered behavior. The sexual eccentricities of his life, anterior to his final breakdown, have been denominated as "perverse," but need not be detailed here. The life history of Maupassant is, in fact, a sad commentary on the theme:

> The nobleness of man
> May be by man effaced; man can control
> To pain, to death, the bent of his own days.

In other words, a man with such remarkable mental traits was not entirely the puppet of a neurotic heredity, although undoubtedly the creature of his environment, to some extent. The sexual brutalities in his writings are in no way different from those perpetrated by Catulle Mendes, Octave Mirbeau, and the shoal of recent Parisian novelists who exploited sexualism in their fictions in order to sell them; nor were they different in tendency and intention from the recent American exploiters of "sex stuff" in our 15 cent magazines. The clean-cut Latin pessimism in Maupassant's observations and aphorisms on life and nature show that he saw clearly what he was doing with his own life. At a time when France has utterly cast aside the decadence and degeneracy of *fin de siècle* Paris to rise once more "a queen of men with helmeted hair," we must not judge of the French nation by its decadent novelists, who have abounded in all countries of late years. Such novels are written and published in France for outlanders, and are seldom read by respectable French people. Our own humbug contributions to sex fiction are printed in magazines that are professedly for the "family circle." France has a right to be judged by her greatest names, by men like Molière, Pascal, Turgot, Colbert, Condorcet, Desault, Larrey, Bichat, Laënnec, Pinel, Louis Blanc, Claude Bernard and Pasteur, men whose lives were as sane and wholesome and clean as those of any other nation. That France has regained her soul, has found herself spiritually, is one of the outstanding facts of recent history; and even if all the men, women and children in France had been destroyed in the present war, the debt that humanity owes to her as the great promoter of liberal sentiment in Europe would still be recognized with gratitude. Most Americans today, in fact, respond to the sentiment of one of our recent poets:

> You have become a forge of snow white fire,
> A crucible of molten steel, O France
> Your sons are stars who cluster to a dawn
> And fade in light for you, O glorious France!
> They pass through meteor changes with a song
> Which to all islands and all continents
> Says life is neither comfort, wealth nor fame.
> Nor quiet hearthstones, friendship, wife nor child,
> Nor love, nor youth's delight, nor manhood's power,
> Nor many days spent in a chosen work,
> Nor honored merit, nor the patterned theme
> Of daily labor, nor the crowns and wreaths
> Of seventy years. . . . .
> As Joan of Arc amid the apple trees
> With sacred joy first heard the voices, then
> Obeying plunged at Orleans in a field
> Of spears, and lived her dream and died in fire,
> Thou, France, hast heard the voices and hast lived
> The dream and known the meaning of the dream,
> And read its riddle: How the soul of man
> May to one greatest purpose make itself
> A lens of clearness, how it loves the cup
> Of deepest truth, and how its bitterest gall
> Turns sweet to soul's surrender.

TEST FOR LEAD IN URINE

To the Editor:—Will you kindly publish, in Queries and Minor Notes, a simple, reliable test for the detection of lead in urine?

E. W. APPLEBE, M.D., New York.

ANSWER.—John W. Holland (Medical Chemistry and Toxicology, Edition 4, Philadelphia, W. B. Saunders Company, 1915, p. 330) suggests that a quart of urine acidified with acetic acid be evaporated to dryness and fused in a crucible with a little pure niter until it becomes white. When the crucible is cool, dilute hydrochloric acid is added *hot* to extract the residue after ignition. The extract is then filtered, and the filtrate is treated with ammonia to alkaline reaction, to precipitate the phosphates and iron. Ammonium sulphid is added at the same time to throw down the lead and iron as sulphids. This deposit is washed three times by decantation with hot water; then water acidified with hydrochloric acid is added, and the whole allowed to stand until the next day. It is then filtered through a small filter, and the residue washed. A little pure nitric acid is then added, drop by drop, to dissolve the lead sulphid left on the filter and carry it through as nitrate. This filtrate is collected in a watch-glass, evaporated to dryness, and the final test is made by adding a drop of water and a crystal of potassium iodid. A yellow precipitate denotes lead.

More accurate and elaborate quantitative methods consist of electrolizing a prepared lead solution or comparing it colorimetrically. Such methods have appeared in the literature during the past few years.

TARTAR EMETIC

To the Editor:—In an early number of THE JOURNAL for this year there was an abstract concerning the use of tartar emetic in the treatment of estivo-autumnal malaria. I would appreciate information concerning the use of this drug—dosage, method of administration, and length of interval between doses.

———, Captain, M. R. C., U. S. Army,
Provisional Base Hospital, Fort Oglethorpe, Ga.

ANSWER.—In a case of apyrexial malaria showing numerous crescents in the blood, Rogers (*British Medical Journal*, Jan. 6, 1917) gave intravenously 4 cg. of tartar emetic on the fourth day, 8 cg. on the fifth and eighth days, respectively, and 12 cg. on the eleventh day. He believes that quinin should be given to check the malaria, and that tartar emetic should be given subsequently by the intravenous method to destroy the persisting organism. In a case of tertian malaria yielding to quinin, with later appearance of crescents, he gave an intravenous injection of 8 cg. of tartar emetic on the second and ninth days, with ultimate disappearance of the crescents. The tartar emetic is used in a 2 per cent. solution.

The following is a list of references on the subject.

Low, G. C., and Newham, H. B.: Intravenous Injection of Antimony in Malaria, *Brit. Med. Jour.*, 1917, **1**, 295; abstr., THE JOURNAL, April 7, 1917, p. 1067.

Rogers, L.: Disappearance of Malignant Tertian Crescents from the Blood Following Intravenous Injections of Tartar Emetic, *Brit. Med. Jour.*, 1917, **1**, 6; abstr., THE JOURNAL, Feb. 10, 1917, p. 490.

Castellani, A.: Tartar Emetic in Certain Diseases of Protozoal Origin Alone and in Combination, *Brit. Med. Jour.*, 1916, **2**, 552; abstr., THE JOURNAL, Nov. 25, 1916, p. 1631.

Rogers, L.: Experience in Tartar Emetic Treatment of Kala Azar, Including Its Use in Young Children, *Indian Med. Gaz.*, 1917, **52**, 265; abstr., THE JOURNAL, Oct. 20, 1917.

MERCURY AND INUNCTION

To the Editor:—1. May I inquire if there are any rapidly disappearing or more soluble preparations of mercury than our regular unguentum hydrargyri that may be used for inunction?

2. Is there such a product on the market as Hagun Cream Hydrargyrum Saponis made by Walter Sach of New York City, and distributed by Sach and Wolf. If there is such a product, is it good?

3. Is there any method of giving mercury by inunction except with a glove-covered hand? Are there any machines which are practical?

W. A. WILSON, M.D., Kansas City, Mo.

ANSWER.—1. The recent investigation by Wile (THE JOURNAL, April 7, 1917, p. 1024) suggests that the use of calomel deserves further study, but it indicates that metallic mercury in the form of mercurial ointment is the most efficient means of administering mercury by inunction.

2. We are not familiar with the proprietary preparation named, or the firm which exploits it. Mixtures of mercury and soap have been used, but are believed not to have any advantage over the official mercurial ointment.

3. The manual method is still almost exclusively the method of making mercury rubbings. In addition, some dermatologists have the patients use mercury rubbings on the body and wear the same undershirt for six or eight weeks. This becomes saturated with the mercury and aids in continuing the absorption. It is the opinion of others that mercury is absorbed by the skin, but that most of the absorption takes place through the inhalation of mercury vaporized from the body. Electric appliances are also available which produce massage through an oscillation movement of hard rubber applicators.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 13-14. Sec., Dr. T. J. Stout, Brinkley.

ARKANSAS: Eclectic: Little Rock, Nov. 13. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

CONNECTICUT: New Haven, Nov. 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

CONNECTICUT: Homeopathic: New Haven, Nov. 13. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

CONNECTICUT: Eclectic: New Haven, Nov. 13. Pres., Dr. J. W. Fyfe, Saugatuck.

DELAWARE: Wilmington, Dec. 11-13. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Jacksonville, Dec. 4-5. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

KENTUCKY: Louisville, Dec. 4-6. Sec., Dr. A. S. McCormack, Bowling Green.

MAINE: Portland, Nov. 13-14. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, Dec. 11. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, Nov. 13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MISSOURI: St. Louis, Dec. 17-19. Sec., Dr. George H. Jones, 206 Washington St., Jefferson City.

NEBRASKA: Lincoln, Nov. 14. Sec., Dr. J. J. Hompes, 612 Security Mutual Life Bldg., Lincoln.

NEVADA: Carson City, Nov. 5. Sec., Dr. S. L. Lee, Carson City.

NEW HAMPSHIRE: Concord, Dec. 10-12. Sec., Dr. W. S. Crosby, Beacon Bldg., Manchester.

OHIO: Columbus, Dec. 4-6. Sec. Pro-tem., Dr. Herbert M. Platter, 185 E. State St., Columbus.

SOUTH CAROLINA: Columbia, Nov. 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 20-22. Sec., Dr. M. F. Bettencourt, Mart.

VIRGINIA: Richmond, Dec. 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

WEST VIRGINIA: Clarksburg, Nov. 21-23. Chairman, Dr. S. L. Jepson, Capitol Bldg., Charleston.

District of Columbia July Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, July 10-12, 1917. The examination covered 17 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 7 candidates examined, 5 passed and 2 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University (1917) 84.2; 86.1; 86.2.		
Georgetown University	(1917)	91.1
Bowdoin Medical School	(1915)	80.1
FAILED		
Minneapolis College of Physicians and Surgeons	(1909)	73.8
Meharry Medical College	(1912) 71; (1915)	66.3

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Baltimore Medical College	(1908)	Maryland
University of Pennsylvania	(1894)	Delaware
Lincoln Memorial University	(1912)	Tennessee
University of Texas	(1909)	Texas

Indiana July Examination

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examinations held at Indianapolis, July 11-13 and August 21-23, 1917. The examination covered 16 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 38 candidates examined, 36, including 1 osteopath, passed and 2 failed. Thirty candidates were licensed through reciprocity. One candidate, a graduate of the University of Louisville in 1916, who obtained a grade of 91.4 per cent., was licensed, Sept. 14, 1917. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
American Medical Missionary College	(1902)	81.6
Chicago College of Medicine and Surgery (1917) 89.9, 90.6, 93.		
Indiana University (1917) 81.9, 84.6, 85.9, 86, 86.3, 87.2, 87.7, 87.8, 88.3, 88.4, 88.7, 89, 89.2, 89.9, 90, 90, 90.3, 90.3, 90.5, 91, 91.2, 91.6, 91.7, 93.2, 94.4.		
University of Louisville (1917) 86.2, 88.3, 90.2.		
Johns Hopkins University	(1917)	89.4, 90.4
University of Pennsylvania	(1916)	92.7
FAILED		
Louisville National Medical College	(1909)	73.1
Meharry Medical College	(1916)	74.3

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Howard University	(1915)	Dist. Colum.
Bennett Medical College	(1912)	Illinois
Chicago College of Med. and Surg. (1913) (1914) (1915,2)		Illinois
College of Physicians and Surgeons, Chicago	(1906)	Wisconsin
	(1912)	Illinois
Rush Medical College	(1905) (1914)	Illinois
Kansas Medical College	(1894)	Kansas
Hospital College of Medicine	(1897)	Kentucky
Baltimore University	(1891)	Michigan
	(1902)	Virginia
Johns Hopkins University	(1908)	New York
Southern Homeopathic Medical College	(1897)	Virginia
University of Michigan Medical School	(1903)	Illinois
St. Louis University	(1913)	Illinois
	(1914) (1915)	Missouri
Washington University	(1910)	Illinois
University of Buffalo	(1913)	New York
Ohio Medical University	(1905)	Ohio
Western Reserve University	(1916)	Ohio
Jefferson Medical College of Philadelphia	(1915)	Penna.
Medico-Chirurgical College of Philadelphia	(1912)	Penna.
Meharry Medical College	(1911)	Tennessee
University College of Medicine	(1901)	Virginia
National University, Athens	(1897) (1913)	Illinois

Iowa Reciprocity Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that fourteen candidates were licensed through reciprocity at the meeting held Oct. 2, 1917. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Chicago College of Medicine and Surgery	(1908)	Illinois
Loyola University	(1916)	Illinois
Northwestern University	(1908)	Illinois
Rush Medical College	(1904) (1914)	Illinois
Tufts College Medical School	(1915)	Nebraska
Detroit College of Medicine	(1904)	Wisconsin
University of Michigan Medical School	(1907)	Michigan
Barnes Medical College	(1902)	Missouri
St. Louis University	(1916)	Missouri
John A. Creighton Medical College	(1913,2) (1916)	Nebraska
Milwaukee Medical College	(1912)	Wisconsin

New Mexico July Examination

Dr. R. K. McClanahan, secretary of the New Mexico Board of Health and Medical Examiners, reports that 21 candidates were licensed on the presentation of satisfactory credentials at the examination held at Santa Fe, July 9, 1917. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
University of Arkansas	(1913)	1
University of Colorado	(1917)	1
George Washington University	(1905)	1
Georgia College of Eclectic Medicine and Surgery	(1898)	1
Northwestern University	(1911)	1
College of Physicians and Surgeons, Chicago	(1903)	1
Kentucky School of Medicine	(1908)	1
University of Louisville	(1893) (1913)	2
Tulane University of Louisiana	(1912)	1
College of Physicians and Surgeons, Baltimore	(1884)	1
Hahnemann Medical College of Philadelphia	(1912)	1
University of Pennsylvania	(1894)	1
Woman's Medical College of Pennsylvania	(1908)	1
Sewanee Medical College	(1904)	1
University of Tennessee	(1891) (1905) (1916)	3
University of Virginia	(1899) (1905) (1910)	3

Arizona July Examination

Dr. John Wix Thomas, secretary of the Board of Medical Examiners of the State of Arizona, reports the written examination held at Phoenix, July 2-3, 1917. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 14 candidates examined, 12 passed, and 2, including 1 osteopath, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Los Angeles	(1917)	86.1
University of South Carolina	(1896)	83.3
Northwestern University	(1905)	75.1
Rush Medical College	(1913)	83
University of Louisville	(1892)	76.6
Medical School of Maine	(1901)	75.8
Boston University	(1906)	86.9
St. Louis University	(1903)	79.8
New York Homeo. Med. College and Flower Hospital	(1915)	82.7
Jefferson Medical College	(1898) 75.7; (1911)	79.3
University of Texas	(1917)	76.2
FAILED		
University Medical College of K. C.	(1907)	68.1

Book Notices

L'APPAREILLAGE DANS LES FRACTURES DE GUERRE. Par Paul Alquier et J. Tanton, Médecin Principal, Professeur agrégé du Val-de-Grâce. Paper. Price, 7 francs 50 centimes. Pp. 250, with 182 illustrations. Paris: Masson et Cie, 1917.

In this work the authors "have in view exclusively the immobilization of compound fractures produced by war projectiles." The theme is that the existence of the wound of the soft parts makes the problem complex because the apparatus applied should leave the wound uncovered in order to permit examination and dressing. The rule of practice laid down is that "with the exception of some cases of bullet wounds with punctiform cutaneous orifices in which operative abstention is permissible, because an aseptic progress of these cases is the rule, all cases of war projectile fractures at the present time ought to be the object of a complete methodical and thorough surgical intervention at the earliest possible moment. Such an intervention is prophylactic, the aim being to transform an infected wound into an aseptic wound."

Following this is a brief discussion of the proper method of opening up the fractured area and of the disposition of the fragments: As a rule, if the patient is seen early, that is, within ten or twelve hours, the fragments should not be removed; but if seen late, that is, in from three to five days, and infection is already present and the members are swollen and discharging pus, then all of the fragments should be carefully removed at the operation, but always subperiosteally. The point made by the authors is that if the fragments are all removed early, the osteogenic layer of the periosteum goes with the fragments, and union almost always fails; but if removed later, even after infection has taken place, the periosteum has become thickened so that it separates from the fragments easily and retains its osteogenic layer, and osteogenesis is not interfered with.

After this brief introduction, the authors plunge into the real subject-matter, which is the proper reduction and immobilization of compound fractures by suitable appliances. In this field the authors find full scope for their great ingenuity and patience, and many of the results accomplished in what appeared to be almost hopeless cases of extensive comminuted compound fractures show that their labor has been abundantly rewarded. Examples of almost every type of fracture of the class under discussion are shown, together with appliances devised to accomplish the purposes indicated. The work again emphasizes the fact that success in the treatment of fractures comes only as a result of constant painstaking care and attention to details, and that it will not do to tie up a fracture in some fixed form of dressing and let it alone, trusting to luck that it will come out all right, as is so frequently done.

Those who are called on to treat fractures will find in this work a rich mine of ideas as to the proper method of applying fixation dressings in this very trying class of cases, namely, compound comminuted fractures of the extremities.

A MANUAL OF ANATOMY. By Henry Erdmann Radasch, M.Sc., M.D., Assistant Professor of Histology and Embryology in Jefferson Medical College. Cloth. Price, $3.50 net. Pp. 489, with 329 illustrations. Philadelphia: W. B. Saunders Company, 1917.

This was written for the purpose of filling the need for an anatomy of moderate size for the use of medical students and nurses. One result of the attempt has been so to condense the material that the various anatomic units composing each of the great systems of the body appear to be treated as related structures rather than as independent units whose relation to each other and to the body as a whole is merely incidental—an impression which is apt to be given by the voluminous discussions of the larger textbooks on anatomy. This feature is especially noticeable and helpful in the sections dealing with the anatomy and the histology of the nerve system, in which the gross anatomy and the microscopic anatomy are continued uninterruptedly from one segment to another; in addition, the various pathways are given separate and rather full consideration, so that impulses may be traced, in a connected manner, from origin to termination. The medical student or practitioner who is interested in applied anatomy may notice the absence of special chapters on surgical and surface anatomy. Although this deficiency is largely compensated for by the clarity and arrangement of the text and the many well chosen illustrations, it still constitutes a definite defect as viewed from the standpoint of the clinician. While this book is a model of clear, concise statement, replete with necessary details but still compact and easy to read, its value to the medical man would be greatly enhanced by the addition of a chapter summarizing the gross anatomic relations of importance to the diagnostician and the operating surgeon.

DIAGNOSTIC SYMPTOMS IN NERVOUS DISEASES. By Edward Livingston Hunt, M.D., Assistant Professor of Clinical Neurology, College of Physicians and Surgeons, Medical Department of Columbia University, New York City. Second Edition. Cloth. Price, $2 net. Pp. 292, with 64 illustrations. Philadelphia: W. B. Saunders Company, 1917.

This book covers the salient points and leading diagnostic symptoms of the principal nervous diseases, and makes it unnecessary for the student or physician who wishes to review his knowledge of the subject to undertake, on his own account, the usual laborious search through the larger treatises. The practical and systematic way in which the various chapters have been divided into definite clinical groups has been well worked out. Following these classifications, brief and instructive explanatory discussions of the different diagnostic signs are presented. The number of illustrations is relatively small, but those that do appear have been carefully selected with a view of conveying to the reader a clear conception of important but often obscure signs. The practitioner who has a general knowledge of the fundamental principles that underlie neurologic subjects will find the classifications and explanations presented an excellent guide in eliciting and interpreting practically all the important signs and symptoms.

DYKE'S AUTOMOBILE AND GASOLINE ENGINE ENCYCLOPEDIA, TREATING ON THE CONSTRUCTION, OPERATION AND REPAIRING OF AUTOMOBILES AND GASOLINE ENGINES. By A. L. Dyke, E.E. Sixth Edition. Cloth. Price, $3. Pp. 896, with 3,392 illustrations. St. Louis: A. L. Dyke, 1917.

This is one of those practical books that give practical advice and make practical suggestions on a very practical subject to the great majority of physicians of today—to those who use automobiles. It is, in a way, an encyclopedia on automobiles and automobile parts, and on the inner combustion engine. A complete index makes ready reference to any subject concerning the automobile, whether propelled by gasoline, vapor, steam or electricity. Detailed information on the Ford and the Packard car is given at the end of the book, in the form of addenda. In the body of the book, however, the special features of different cars are discussed.

Medicolegal

Physician Rendering Services to Minor at Father's Request

(Potter vs. Thomas (N. Y.), 164 N. Y. Supp. 923)

The Supreme Court of New York, Appellate Term, First Department, reverses a judgment for $600 that the plaintiff recovered for professional services rendered to the defendant, termed an infant, who was 16 years old and attending a boarding school in Connecticut. The court says that the defendant was seriously injured in an automobile accident, and some one telephoned to her father in New York to bring a surgeon from there. The father, who lived in the plaintiff's house, requested the plaintiff to accompany him. Subsequently the plaintiff made other trips to the school, to treat the girl for her injuries, and on some of these visits he was accompanied by her father, who on these occasions paid the fares. At no time was there any conversation between the plaintiff and the defendant in relation to the plaintiff's employment, or on the subject of payment for his services. The services so rendered were concededly necessaries, and the reasonableness of the charge was admitted. The defen-

dant's father was her guardian at the time the services were rendered, but subsequently his letters were revoked, and an uncle of the defendant was appointed in his stead. The plaintiff testified that by reason of his close association with him he knew that the father was impecunious, knew the infant had an estate, and had expected to be paid out of her estate. The father refused to pay the bill, and the plaintiff presented it to the new guardian, who disclaimed liability. Thereupon this action was brought against the infant.

If an infant is so situated as to render it unnecessary for him to pledge his personal credit to obtain necessaries, his contract will not bind him. Here the guardian was entrusted with the management of an estate ample to pay for the plaintiff's services. It was his duty to provide his ward with necessary medical attention, to the extent that the property under his control and properly applicable thereto would permit. Under stress of such an emergency as was here present, an encroachment on the principal of the infant's estate was permissible. In order, however, to fasten liability on the defendant personally, the plaintiff was required to establish affirmatively that the person charged with the duty of maintaining and protecting the infant, at the time the services were rendered, was either unwilling or unable to discharge his obligation. The proofs in this case failed to satisfy this requirement, and the most favorable view that might be taken of the testimony was that it indicated that the plaintiff at all times looked to the infant's estate for payment. It was clear that no credit was extended to the infant herself.

The express request for the plaintiff's services was made by the father and guardian. While it was his general duty as a father to care for his minor child, the court thinks his right in the circumstances to charge, as guardian, the defendant's estate for the payment of the plaintiff's services could not be questioned, had he seen fit to adopt that course. But he could bind himself only as an individual, whether acting as father or guardian, and that he did this was, the court thinks, plainly the legal effect of his employment of the plaintiff.

A guardian is a trustee, and it is possible that the plaintiff may be able to procure the payment that in all decency he is entitled to receive from some one, by invoking equitable principles that have been applied in cases involving the administration of trust estates. In any event, a judgment at law against the defendant in these circumstances cannot be allowed to stand.

Neither Railway Company nor Conductor Liable for Services of Physician

(Cannon et al. vs. Minneapolis & St. L. Ry. Co. et al. (Minn.), 162 N. W. R. 355)

The Supreme Court of Minnesota, in affirming a judgment in favor of the defendants, says that the plaintiffs sued for professional services and hospital care rendered to one Curran on the alleged request of the defendants. The trial court found that the services and care were not rendered on the request, either express or implied, of the defendants; and the supreme court, having examined the evidence, discovers no basis therein for the claim that the lower court should have, or could have, found otherwise than was done. The foreman and crew of laborers of another railway company, in leaving their work to go home, came to a crossing whereon a freight train of the defendant railway company was standing. The defendant Forgy was the conductor in charge of the train. The foreman and laborers mentioned, one of whom was Curran, tired of waiting, climbed over, or passed through, the train about the same time it started to move. On looking back, the foreman saw Curran come out from the train, bleeding from an ugly scalp wound, and immediately went to see how badly he was hurt. Forgy also came up to him for the same purpose. The foreman noticed that Curran was dazed from the injury. Both he and Forgy undoubtedly realized that the man needed medical attention, and Forgy asked the foreman if he would get a doctor for him. He answered that he would, and started off with Curran. The injured man was taken to the foreman's home. Then he directed his children to take him to a drug store, and call one of the plaintiffs. This was done. The record failed to show that the plaintiffs knew at whose direction the call came, or that they made any inquiry as to the defendants' connection with the injury, or had any knowledge of any desire on the part of the defendants that Curran should receive care or treatment. Curran was an able-bodied laborer, and the one who furnished him with needed medical attention would presumably look to him alone for pay. There was no intimation that either of the defendants was in any way to blame for his injury, or that the plaintiffs so thought when the treatment and care were rendered; hence no obligation rested on them to reimburse the plaintiffs. Curran was neither a passenger nor an employee of the defendant railway company, and Forgy was not authorized to employ a physician to treat his injuries under the rule of the company offered in evidence by the plaintiffs. To charge the defendants, it was necessary to show either that they were under some obligation to furnish Curran with medical attention, or that the plaintiffs rendered the same in reliance on a request [promise?] of the defendants to become responsible therefor. The evidence suggested nothing in that direction. What Forgy did was no more than a personal kindness to Curran.

Limited Waiver as to Physical Examination

(Oklahoma Ry. Co. vs. Thomas (Okla.), 164 Pac. R. 120)

The Supreme Court of Oklahoma holds that where the plaintiff in an action for damages for personal injuries exhibits a portion of his body to the jury and physicians called by him to testify as to the nature and extent of his injuries, and he offers to submit to an examination by any physician or board of physicians named by the court other than those in the employ of the defendant, who are shown to have been employed by the defendant and who are to receive $25 per day for testifying in the case, it is not error for the court to refuse to require the plaintiff to submit to an examination by the physicians employed by the defendant. The court says it has been held that the courts of Oklahoma, in the absence of a constitutional or statutory provision authorizing them to do so, have no authority in an action for damages to order a plaintiff to submit in advance of or during the trial of a case to a physical examination by a physician to be appointed by the court. On the first trial of this case, plaintiff Thomas waived his exemption on condition that the examination should be made by a board of three physicians to be selected by the court, and the defendant, in order to obtain the privilege of such an examination and the testimony of the physicians making it, agreed to these conditions. Had the plaintiff not made this agreement, an examination could not have been had nor testimony based thereon procured by the defendant in the absence of a waiver of his exemption by the plaintiff. Did the fact that a new trial was granted relieve the parties from the agreement entered into, and authorize the court to compel the plaintiff to submit to an examination? The court thinks not, in the absence of additional waiver on the part of the plaintiff. While calling other physicians, the plaintiff exposed his person to the jury only in connection with the testimony of one of the physicians who had been named by the court to make the examination agreed to as above, and without objection permitted another of said named physicians to examine his body and testify in connection with such examination. Not having permitted any physician other than the one appointed by the court to make an examination in the presence of the jury and testify with reference thereto, the plaintiff could not be said to have waived his exemption further than he had done on the former trial; and having permitted the defendant, without objection, to call another member of the board, he submitted to all of the conditions on which the exemption was originally waived. For another reason there was no error in the ruling of the court refusing to require the plaintiff to submit to an examination by physicians in the employment of the defendant. If it be said that the calling of the physician mentioned was a waiver by the plaintiff of his exemption, independent of the agreement entered into at the first trial, the court was authorized to impose such reasonable restrictions as it might deem best on the right of the defendant to such an examination.

Society Proceedings

COMING MEETINGS

Amer. Public Health Association, Washington, D. C., Dec. 4-7.
Kentucky State Medical Association, Louisville, Nov. 6-9.
Southern Medical Association, Memphis, November 12-15.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Evansville, Sept. 26-28, 1917

(*Concluded from page 1469*)

Tests Used to Detect Malingering

DR. GEORGE F. KEIPER, Lafayette: The recent draft for soldiers for the National Army has revealed the necessity of reviewing the tests used to detect malingering. Ninety per cent. of the men have been honest, and responded promptly and truthfully to the tests. The tests fall under two heads—objective, what the examiner hears and sees; and subjective, what the examinee hears and sees. Recruits must have $^{20}/_{40}$ vision of one eye and $^{20}/_{100}$ of the other, provided no organic disease exists, and their hearing must be $^{1}/_{20}$ of normal. The Duane test, the Snellen test, the Graefe-Baudry, the Todd and many others are used for simulated blindness, while for hearing, the Weber-Kerrison test, and Bárány noise apparatus are among those used. With these, malingering may be detected in a great majority of cases. Some may baffle the surgeon for a time, but if persisted in they will ultimately come to light.

DISCUSSION

DR. E. M. SHANKLIN, Hammond: My work along this line has been in connection with the various industries of our region, in which I have to deal with many foreigners. We have always had to contend with some members of the legal fraternity, and since the inauguration of the industrial board, the "ambulance chasers" have taken to instructing their clients how to evade the examinations. However, we are usually able by some of these tests to find the malingerer.

Prostatic Hypertrophy

DRS. W. N. WISHARD and H. G. HAMER, Indianapolis: This may involve the entire organ, or the increase in size may be confined to one lateral lobe or to the median portion. Of greater importance than the size is the change it works on the outlet of the bladder. The symptoms of prostatic hypertrophy are those mainly due to mechanical obstruction, but are augmented by infection producing pain and frequency of urination. The severity of the symptoms ordinarily bears a direct relation to the character and degree of obstruction, although this does not necessarily indicate the size of the growth, as the growth may be a small, pedunculated middle lobe acting as a ball valve obstruction and producing complete retention; and if the element of infection is added, the symptoms of pain and desire to urinate will become extreme; whereas a symmetrical growth may reach an enormous size without producing more than a slight increase in the frequency of urination. The suprapubic operation has given good results, in that bladder function is restored and there is less danger to other structures as well as less interference with the function of other organs. It has fewer complications and is more certain of cure.

DR. CHARLES M. MIX, Muncie: There seems to be a lack of interest among the general practitioners in surgery of the prostate, due not so much to lack of knowledge as to the result of unhappy experiences. The general practitioner is in an expectant attitude. Surgery must demonstrate the value of the more recent methods of surgical interference. The best answer is a number of old men in a community who have been relieved and will recommend the operation to other sufferers.

DISCUSSION

DR. W. N. WISHARD, Indianapolis: I am not by any means convinced that surgery of the eye, surgery of the nose and throat, and surgery of the ear is altogether legitimate surgery for the general practitioner. Neither am I convinced that surgery of the prostate is best done by the general surgeon, for the reason that there is a very considerable detailed technic involved in the diagnosis, proper treatment, and in the operation itself, which necessarily is a special department of work. We have today some highly competent general surgeons who have become very good prostatic surgeons. A man must be a skilled cystoscopist before he undertakes to do work on the prostate, and it is important that one should carefully understand, follow and cover as completely as may be other questions of pathology that are involved in the sometimes prolonged preliminary treatment.

DR. LOUIS FRANK, Louisville, Ky.: The most important elements in the success of prostatic surgery are careful preparation of the patient, wise selection of the anesthetic, and the control of hemorrhage at the time of operation. With care in these directions, the mortality may be very low; without it the mortality will be out of all proportion to what it should be.

Abdominal Wounds in War

DR. J. RILUS EASTMAN, Indianapolis: The present war has witnessed important developments in the treatment of abdominal gunshot wounds. In previous wars it was held that gunshot injuries of the abdomen should be treated conservatively, as distinguished from the teaching of prompt operation in civil practice. The old plan of "rest and opium" still has some advocates, but the weight of opinion is in favor of applying in military practice the civil method of immediate operation (within twelve hours) in all penetrating wounds of the abdomen, especially when conditions include a skilled operator, trained assistants, a sufficient armamentarium, and last but not least, an aseptic environment. It is likely that the best explanation of the improved statistics of operation in this war is to be sought in the favorable conditions of the trench, the battle lines being in the main more stable than in former wars and allowing of better preparation for operating near the front. A smooth, undeformed bullet, as a rule, makes a small, easily sutured opening in a hollow viscus, unless the shot is tangential to the intestine. However, such a bullet usually produces an irregular laceration of a parenchymatous organ, the aperture of entrance being smaller and more clear cut than the aperture of exit. Irregularly deformed bullets naturally produce larger and more ragged wounds than do smooth ones. For example, the fragmented nickel or steel mantle partially split off and projecting from the lead center bullet may do frightful damage. Large grenade fragments do not, as a rule, penetrate deeply, but often cause extensive crushing and laceration of the abdominal wall. Small grenade fragments often do very little injury on the surface, but the wound is deceptive, the intra-abdominal injury being more serious. Shrapnel balls often remain impacted in the abdominal coverings, but do comparatively little damage. They rarely completely traverse the abdomen. Before operation is undertaken, simple nonpenetrating injury of the abdominal wall must be considered intelligently; also the question of whether conservative treatment, considering the patient's general state and surroundings, would not be better. Operation is not undertaken unless conditions are favorable for good operating. The general treatment of patients not to be operated on consists in rest in the recumbent position with shoulders raised and knees flexed, thus relaxing the abdominal muscles and giving comfort to the patient. An attempt to move the patient should be avoided, nor should he be permitted to move himself. If moved before operation, the Fowler position should be maintained during transport.

DISCUSSION

DR. MURRAY N. HADLEY, Indianapolis: What Dr. Eastman said regarding puncture wounds of the abdomen may be applied in civil practice. The first symptom he mentions, that is, the evidence of the presumptive peripheral wound, is all that is required in civil practice for an exploration. However, the points he brought out in regard to kidney and liver dulness and tenderness are all things which should be used by the civil surgeon to determine whether or not he should

open the abdomen. It is not always easy to determine just what has happened even when the abdomen is opened.

DR. W. D. GATCH, Indianapolis: During a street-car strike in Indianapolis a few years ago we had at the City Hospital twelve cases of gunshot wounds in the abdomen within a month, in which I operated under the most ideal circumstances and within half an hour. The total mortality in a small series of my cases is 40 per cent., and I believe the civil mortality ranges about 50 per cent. What Dr. Eastman said of wounds of the bladder was confirmed in these cases. In two cases the bullet had gone right through the kidney and down into the thigh. Both patients recovered.

COLORADO STATE MEDICAL SOCIETY

Forty-Seventh Annual Meeting, held at Colorado Springs, Sept. 25-27, 1917

(*Concluded from page 1468*)

Cesarean Section in Toxemia of Pregnancy

DR. L. H. MCKINNIE, Colorado Springs: I have had twelve cesarean sections for the toxemia of pregnancy without a death. I have been favored in the handling of these cases in that I have seen the patients early, and they came from the hands of good obstetricians whose previous treatment and examinations could be depended on. These women have all had one or more convulsions. I have operated on two women who had had no convulsions before operation. One woman had a small pelvis, and it was expected that there would be more or less difficulty with the delivery. Twenty-four hours preceding the operation, the albumin in the urine had increased rather rapidly, and about ten hours before the operation, casts were found in the urine. The patient complained of slight nausea, and the blood pressure rapidly increased from 130 to 190. Taking into consideration the fact that we expected a very difficult and slow labor, and the patient's rapid increase of toxemia, we decided to do an abdominal cesarean section. This was done without difficulty under nitrous oxid-oxygen anesthesia. About three hours following the delivery she had one slight convulsion. Following this she had an uninterrupted recovery, the blood pressure rapidly decreasing and the albumin and casts clearing up in about seven days. The other case was somewhat similar in history, but had shown for some little time a suspicion of oncoming toxemia. I have delivered thirteen babies, with three deaths, twins of six months, and the one child of eight months.

DISCUSSION

DR. M. J. KEENEY, Pueblo: A young primipara, who has a well developed toxemia of pregnancy which does not improve under a short course of treatment, should be delivered by cesarean section. A study of the blood pressure of these women is very important in deciding on operative intervention.

DR. CHARLES A. FERRIS, Denver: Cesarean section, at the present stage of its development, is liable to abuse. An abdominal surgeon can open the abdomen of a woman and take out the baby at term with a good deal of ease, although he may not know anything about the obstetric indications for the operation. That is one large avenue of abuse of the cesarean operation, and is liable to bring the practitioner into disrepute. However, cesarean section is a well established therapeutic measure in properly selected cases.

DR. H. G. WETHERILL, Denver: I believe Dr. McKinnie succeeded in his series of cases because he gave these patients nitrous oxid gas. The great majority of the profession is unanimous in agreeing that chloroform should not be given to an eclamptic woman under any circumstances. Ether is certainly not the anesthetic of choice. The reaction on the kidneys and lungs, although slight, constitutes a definite danger, and ether should be avoided if possible. Nitrous oxid gas is the anesthetic of choice in operations on eclamptics.

DR. W. F. MATSON, Denver: I have been in the habit of waiting for a second convulsion before resorting to cesarean section; but we are guided by the ease by which delivery might be brought about through the natural channel. A primipara, with a long rigid cervix, who has not had labor pains, should always have a cesarean section. On the other hand, a woman with an easily dilatable cervix, with a left occipito-anterior vertex presentation should be delivered through the natural channel.

DR. O. M. SHIVERS, Colorado Springs: I am afraid that if we get too radical along the line of operating on eclamptic patients, general practitioners will be doing cesarean sections for other conditions that should be dealt with by less radical measures.

Acute Perforation of Abdominal Viscera

DR. CHAUNCEY E. TENNANT, Denver: Surgeons have recently shown that in cases of abdominal injuries occurring at the battle front, the mortality of the patients not operated on is nearly three times as great as of those operated on. When these patients are operated on within the first eight hours after perforation, the larger percentage recover. It is imperative to make an early diagnosis, even at the expense of an exploratory operation.

Roentgen Diagnosis of Lesions of the Esophagus

DR. J. A. MATLACK, Longmont: In partial or complete obstruction of the esophagus, the roentgen method of examination is usually satisfactory and conclusive. In the hands of a trained operator the technic is simple, and the procedure is not uncomfortable to the patient. In all cases, final interpretation of the roentgen findings must be made only after careful consideration of all available clinical data.

A Few Difficulties in the Administration of Ether

DR. D. E. HOAG, Pueblo: One of the best plans to secure complete muscular relaxation is to administer some preliminary narcotic, and to induce anesthesia slowly and evenly. In a large percentage of surgical cases there is a tendency to spasmodic closure of the air-way, and this is best counteracted by keeping the lower jaw pressed forward. Overriding teeth will sometimes prevent the lower jaw from coming forward. Pulling the chin away from the sternum or completely extending the head over the operating table is often of use in obstructed breathing. An artificial air-way is of great help. There are certain postures, namely, the prone and semiprone, in which the trunk weight may tell directly on chest expansion. If breathing becomes much embarrassed or ceases, the patient should at once be placed in the dorsal position, and the ordinary means adopted for restoring breathing. Lip friction, sponging the pharynx and tongue traction are all of help, and in desperate cases artificial respiration or laryngotomy must be resorted to.

Causes of Iritis and Allied Inflammations

DR. EDWARD JACKSON, Denver: Rheumatic iritis used to be ranked as next to syphilitic in frequency. In nearly forty years of practice, I have seen only one case of iritis arising during an attack of acute articular rheumatism. Focal infection has taken the place of chronic rheumatism in the list of causes. The particular organisms present in iritis are usually staphylococci and streptococci. The experimental work done by Rosenow and confirmed by Brown, Irons and Nadler seems to show that certain strains of streptococci are especially likely to cause iritis. Tuberculosis is the cause of many cases of uveal inflammation that were formerly not recognized as being due to it. Of my twenty-five cases, four were clearly tuberculous. Gonococcus infection has long been recognized as a cause of iritis, but its relative importance has been greatly underestimated. In my series there was but one case due to this cause. Gastro-intestinal autointoxication has of late years been recognized as an important cause of iritis, and treatment based on this view has been markedly successful, so that we might claim the diagnosis established by the therapeutic test. Of my twenty-five cases, five were put down as due to this form of poisoning.

The curative treatment of iritis is chiefly extra-ocular. The cause of the iritis should be ascertained and removed, or its deleterious influence removed so far as possible.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

October, XIV, No. 4

1 *Hunger in Infant. R. Taylor, Rochester, Minn.—p. 233.
2 *Hunger and Appetite Secretion of Gastric Juice in Infant's Stomachs. R. Taylor, Rochester, Minn.—p. 238.
3 *Studies in Nephritis of Children. L. W. Hill, Boston.—p. 267.
4 *Prophylactic Use of Pertussis Vaccine Controlled by Complement Fixation Test. E. J. Huenekens, Minneapolis.—p. 283.
5 Paroxysmal Tachycardia in Childhood. N. W. Brown, Baltimore.—p. 287.
6 Case of Pneumonia of Unusually Short Duration. H. B. Conrad, Baltimore.—p. 296.
7 Case of Pernicious Anemia in Boy of Eight Years. J. L. Morse and S. B. Wohlbach, Boston.—p. 301.

1. Hunger in Infant.—The material investigated by Taylor included five premature infants weighing from 1,200 to 2,500 gm., forty full term new-borns under 3 weeks of age, and eleven older babies, five between 1 and 2 months, two between 3 and 4 months, three between 4 and 6 months, and one boy of 2 years with a surgically induced gastric fistula made necessary by the effects of corrosive in the esophagus. The gastric movements of some of the infants were recorded only once; on others as many as twenty observations were made. The results of this work fully confirm Carlson and Ginsburg's report that the stomach of the new-born infant exhibits greater hunger contraction than does that of the adult. In normally developing breast fed babes, hunger is not ordinarily an immediate cause of crying. The average time required for the development of hunger in healthy infants gaining in weight and receiving a known sufficient amount of food is, in prematures, under one month, one hour and forty minutes, with a maximum of two hours and twenty minutes and a minimum of forty minutes; in full term infants under 2 weeks, two hours and fifty minutes, with a maximum of four hours and a minimum of two hours; in infants from 2 weeks to 4 months, three hours and forty minutes, with a maximum of four hours and thirty-five minutes and a minimum of three hours and twelve minutes. Hunger contractions occur in these infants long before the stomach has emptied. Consequently their presence is not in itself an indication that the stomach is ready for food.

2. **Hunger Secretion of Gastric Juice in Infants' Stomachs.**—In this study Taylor shows that there is no appetite or psychic secretion of gastric juice in the young infant. This disproves the present view, which, he says, is based on insufficient experimental evidence. The empty stomach of the hungry babe secretes a gastric juice which often is as acid as that found in the adult's stomach. The more profuse this secretion, the higher is its acidity. It contains pepsin. This secretion is not neutralized in the stomach, but flows out into the small intestine. Regurgitation through the infant's pylorus does not occur. Taylor suggests that therapeutic starvation in acute alimentary disorders and in summer diarrheas may owe its success in part to the heightened tonus of the alimentary tract, and in part to the pouring out of highly acid detoxicating and disinfecting gastic juice into the small intestine.

3. **Nephritis in Children.**—Four methods of testing kidney function in children are discussed by Hill: the added salt and urea test, the phenolsulphonephthalein test, the two-hour renal test, and the determination of the concentration of urea nitrogen in the blood. Of these tests the added salt and urea test is of little practical value in children. The determination of the blood urea is probably of slightly more value. The most valuable of the four tests discussed are the phenolsulphonephthalein test and the two-hour renal test, because they are simple to carry out, and because they give reliable and important information concerning the functional power of the kidney. These two tests supplement each other, and more valuable information can be obtained by using them together than by using either one singly. In general, repeated low functional tests at intervals of a few months mean a poor prognosis. High phenolsulphonephthalein excretion alone does not help one way or the other. High phenolsulphonephthalein excretion, normal blood urea, and a normal response to the two-hour test warrant a conclusion that the process is a mild one, that the kidneys are only slightly damaged, and that there is a good chance for ultimate recovery.

4. **Pertussis Vaccine Controlled by Complement Fixation Test.**—Huenekens' observations in seventeen cases would theoretically justify the prophylactic vaccination against pertussis. In none of the cases treated with small doses could any antibodies be demonstrated. Whereas, large doses, such as recommended by the New York City Health Department, showed antibodies in 44 per cent. of the cases. The freshly prepared vaccines were, apparently, more effective than the stock vaccines, as 60 per cent. of the patients treated gave positive fixation reaction. From this, it may be concluded that it is possible to immunize children against pertussis if sufficiently large doses of freshly prepared vaccine be used.

Archives of Pediatrics, New York

September, XXXIV, No. 9

8 *Appendicitis in Infants. I. A. Abt, Chicago.—p. 641.
9 Effect of Chilling on Experimental Pyelonephritis in Rabbit. H. F. Helmholz and B. Rappaport, Chicago.—p. 658.
10 *Unresolved Pneumonias: What Becomes of Them? J. H. Hess, Chicago.—p. 686.
11 Classification of Finkelstein. J. R. Gerstley, Chicago.—p. 691.
12 Empyema: Simple, Interrupted and Continuous Aspiration. H. M. Richter, Chicago.—p. 696.
13 *Prophylactic Vaccination Against Chickenpox. M. Michael, Chicago.—p. 702.
14 *Five Per Cent. Oatmeal Gruel in Infant Feeding. A. Levinson, Chicago.—p. 707.

8. Appendicitis in Infants.—Abt has collected from the literature of appendicitis eighty cases of the disease in infants under 2 years of age. Among the cases occurring among children under 3 months, are two possible instances of prenatal appendicitis. The first was a doubtful case in a newborn baby with an eventration and a hernia into the umbilical cord. The appendix of this patient was removed. The second occurred in a baby poisoned by the ingestion of mercuric chlorid and died forty hours after birth. The necropsy showed that the appendix was congested, twisted and bound to the cecum by numerous adhesions. Eighteen additional cases occurred in infants under 3 months. There were six cases in children from 3 to 6 months of age. Eleven cases occurred in children from 6 to 12 months, and forty cases occurred in children from 1 to 2 years. Manifest chill, which is rare in childhood, is infrequently noticed in the first stage of the disease. Temperature is unreliable. It may be very high, or in some instances it may be subnormal. Pulse usually corresponds to the temperature. When extensive peritonitis occurs, the pulse is rapid, weak and irregular. In adults, as in children, an abatement of severe symptoms sometimes occurs after the perforation of the appendix.

Constipation is the rule and occurs among the more severe types. Diarrhea occurs in the milder types, though both conditions may be present, one alternating with the other. When general peritonitis occurs, and paralytic ileus results, symptoms of bowel obstruction naturally follow. Traumatism or diseases of the alimentary tract occasionally seem to play a part in the production of appendicitis. Infection may take place through the lymphatics, or possibly, in some cases, it may be a direct extension from the cecum. In addition, appendicitis may occur after erysipelas, scarlet fever, pulmonary and pleural infections, tonsillitis and other diseases. Foreign bodies, such as worms in the appendix, may bear a direct causal relation. The blood examination in almost every case shows a polymorphonuclear leukocytosis. When general peritonitis occurs, or where the general defenses of the body are reduced and exhausted by severe sepsis, the leukocyte count may be low.

The diagnosis in young infants is difficult, and the mortality is high. Furthermore, the precise condition is frequently confused with intussusception, intestinal obstruction, diffuse pneumococcic peritonitis, pleurisy, pneumonia, gastro-enteritis, typhoid (rarely), ileopsoas abscess or coxalgia. Tenderness at McBurney's point, if it can be elicited, is of diagnostic

importance, but, the appendix in children frequently lies deep, so that tenderness may be greater on the left than on the right side, or it may be deflected upward. Rectal examination is of great importance in such cases. When there is palpable resistance on the right side, in the presence of other symptoms, the diagnosis of appendicitis should be suspected.

10. **Unresolved Pneumonias.**—Hess emphasizes the fact that tuberculosis is frequently a complicating, if not primary factor in many of the fatal cases and unquestionably frequently a factor in delayed resolution in recovered cases. Empyema especially of the intralobular type must be excluded in all cases. Empyema and tuberculosis are the two complications to be most carefully watched for and treated, the former surgically, the latter symptomatically. The rare etiologic factors, such as syphilis, foreign body, metastatic and primary new growths, while uncommon, must not be overlooked. The diagnosis of nontuberculous interstitial pneumonia should always be made with great caution and after exclusion of all other conditions causing similar physical findings.

13. **Prophylactic Vaccination against Chickenpox.**—Thirty-two children in an institution were exposed to chickenpox and were given prophylactic vaccinations. Seven developed the disease, six between thirteen and sixteen days after vaccination. In the other instance the date was not known. Eight developed lesions at the site of vaccination between the tenth and fourteenth day, four of these developed chickenpox. Of the four, who had vaccinal lesions and who developed the disease, three had mild attacks and one a severe attack; of three who did not have vaccinal lesions two had severe and one a moderately severe attack. The ages of all who developed vaccinal lesions were between 2 and 5 years. This is true also of those who had chickenpox, except one girl of 7. It is evident that chickenpox is inoculable, as is shown by the development of lesions at the site of vaccination in eight of the thirty-two children vaccinated. This inoculation seems to take place more readily in young children, for the positive results were invariable in children under 5 years of age.

14. **Oatmeal Gruel in Infant Feeding.**—Levinson urges the use of oatmeal gruel as an important addition to infant food. The 5 per cent. solution is the most efficacious. It can be prepared very simply by washing grits in cold water and boiling for thirty minutes and then straining. Gruel can be given at any age with beneficial results. Its taking increases the appetite of the child, makes the stool homogeneous, and often relieves constipation. The gruel has high iron content. The caloric value of 1,000 gm. is 54 large calories.

Boston Medical and Surgical Journal

October, 11, CLXXVII, No. 15

15 Neurologic Indications for and against Operation in Traumatic Injuries Affecting Central Nervous System. J. J. Thomas, Boston.—p. 563.
16 *Indications for Operation on Traumatic Head Cases. E. H. Nichols, Boston.—p. 508.
17 *Temperature as Valuable Guide to Diagnosis, Prognosis and Surgical Treatment in Craniocerebral Traumatisms. J. W. Courtney, Boston.—p. 511.
18 *Indications for Laminectomy in Fracture of Spine, with Cord Symptoms. J. B. Hartwell, Boston.—p. 513.
19 *Fractures of Base of Skull at Massachusetts General Hospital. W. J. Mixter, Boston.—p. 518.
20 *Report of Cases of Fracture of Skull and Spine, from Fourth Surgical Service, Boston City Hospital. F. J. Cotton and W. F. Cotting, Boston.—p. 519.
21 Cholecyst-Duodenal Fistula. **E. D. Gardner**, New Bedford.—p. 523.

16. **Operation in Traumatic Head Cases.**—Nichols summarizes his paper as follows: Uncomplicated edema of the brain almost never requires operation. Slight laceration of the brain with persisting edema sometimes requires operation to prevent cerebral degeneration. Subtemporal method is the best operation. Slight extracerebral hemorrhage seldom requires operation; occasionally demands operation to avoid cyst formation; the operation of choice is always skin bone flap. Extensive extracerebral hemorrhage, from rupture of the middle meningeal artery, with or without focal symptoms, always should be operated on, and always by skin bone flap method. Basilar hemorrhage seldom can be cured by operation. When operation is performed it should be in selected cases, for relief of pressure, and usually by skin bone flap method. Intracerebral hemorrhage cannot be cured by operation, although pressure may be relieved. Fracture of the skull by itself, is of little importance except when compounded, when it may produce meningitis unless made aseptic. All depressed fractures involving the entire thickness of the skull should be elevated.

17. **Temperature as Guide in Craniocerebral Traumatisms.**—Personal experience leads Courtney to declares dogmatically that of all the diagnostic and prognostic manifestations of intracranial traumatisms, the temperature throughout stands supreme in the scale of importance. In intracranial hemorrhage unless the bleeding is very extensive and complicated by coexisting alcoholic intoxication, the temperature soon regains the normal and is seldom elevated more than a single degree throughout the entire course of the case, provided no extensive degree of contusion and no degree whatsoever of laceration be present. In uncomplicated contusion the range of the temperature is equally distinctive. In the generality of cases it rises quickly from the subnormal point caused by shock and may go as high as 102. Almost from the beginning its recessions are striking, a morning fall and an evening rise. In favorable cases the evening range gradually narrows to the normal point, the morning recession to a point but slightly subnormal. Toward the end, in unfavorable cases, temperature and pulse rise together and may reach a very high point.

In brain laceration the initial fall of temperature from shock is of extremely brief duration. The almost immediate trend of the temperature is steadily upward, and in severe cases it may rise to 104 or 105 in a few hours. An early and persistently high temperature after craniocerebral traumatism invariably denotes brain laceration. The occurrence of chills during the course of a case of head injury is not an indication of pus formation. The development of an arachnitic process is marked by a sudden jump in the temperature accompanied by such signs of cortical irritation as delirium, somnolence or great motor restlessness. In cerebral abscess the temperature is normal during a sinister period of quiescence which follows the antecedent activity of the process, and subnormal after an abscess has attained sufficient proportions to cause local manifestations of its presence.

18. **Laminectomy in Fracture of Spine with Cord Symptoms.**—The indications and contraindications for laminectomy in Hartwell's opinion are as follows: Laminectomy is absolutely contraindicated in all cases of fracture of the cervical segment of the spine in which there is a paralysis of the intercostal and abdominal muscles, and is contraindicated in all fractures of the spine, wherever located, with cord symptoms of immediate onset, however slight, if other severe injuries are demonstrable, or if the patient presents or has presented the signs of surgical shock. Laminectomy is contraindicated in cases of fracture of the spine with synchronous cord injury, in which the signs point to a complete crush of the cord, until at least four days have passed—the minimum time in which spontaneous improvement can be expected to manifest itself.—and if no spontaneous improvement is shown that operation offers no real hope.

Laminectomy is justifiable in cases of fracture of the spine, accompanied by cord symptoms which do not point to a complete cord destruction, if the patient comes under observation within six hours, and if, during the period of observation, the cord symptoms are progressive. In such cases laminectomy with incision into the cord substance for drainage should be practiced at once. Laminectomy is urgently and immediately demanded in those cases of spinal fracture in which cord symptoms are of slow onset and progressive, and in those cases originally free from cord symptoms, in which medullary signs make a sudden appearance. Laminectomy is indicated in those fractures of the lumbar spine in which the cord symptoms indicate injury to the cauda equina, and in these cases an attempt to suture the crushed trunks should be made. Laminectomy is indicated in those cases of old fractures of the spine in which cord symptoms were originally absent or slight and of short duration, but in which the symptoms of pressure on the cord develop late.

19. **Fractures of Base of Skull.**—Mixter's statistics show that among 209 cases of fractures of the base of the skull treated expectantly there was a mortality of 58.3 per cent., whereas among ninety-two cases treated by operation the mortality was 43.4 per cent. Mixter says that decompression in the proper cases of fracture of the base of the skull markedly lowers the mortality. Localizing signs are of value but are certainly no more important than the evidences of increased intracranial pressure. Operation should be performed as early as possible, as late operations are much less effective. As a rule, the decision for or against operation can be made at once, but in a certain number of doubtful cases it is necessary to wait from six to twenty-four hours in order to observe the increase or decrease in symptoms. If the decision is made to postpone operation or not to operate at all, the patient is sent to the ward and the pulse, temperature and blood pressure watched and the condition of the eye grounds noted at intervals. Epsom salt, by the mouth or stomach tube, and an enema are usually given within a few hours. The general pressure symptoms and the general condition of the patient are of fully as great importance as an indication for operation as any localizing signs.

20. **Fracture of Skull and Spine.**—Of twenty-one cases of proved skull fracture, only seven were operated on by Cotton and Cotting; of these there were no deaths following operation save by way of sepsis—late; while of those not operated on there was one death in a hopelessly smashed case and only one death from alcohol combined with trauma in which operation after three to four days would perhaps have been better. It has been Cotton's rule not to do radical operations early, just to clean up compound damage and to await results. If one operates early there is a large percentage of deaths, occurring with curious accuracy ten or twelve hours after operation, from a combination of shock, uncontrollable leakage of blood and of cerebrospinal fluid. Certain cases like one of subdural hemorrhage cited, growing steadily worse from hemorrhage, must be operated on and take their chance. In the main, however, if one can wait, and one mostly can wait safely from forty-eight to seventy-two hours, then the bleeding has ceased, the shock is over, and one can operate or not, mostly not, without much risk and for definite reasons. Depressed fragments, signs of cortical pressure, persistent slowness in clearing of the mental state, with or without signs of actual pressure, are the indications and the only indications. In the early stages, particularly in base fractures, intracranial pressure is not the sole trouble; when they die it is apt to be from an operation which renews bleeding as it removes pressure, a bleeding from sinuses or little basal veins that one cannot control, which with the added trauma is enough to turn the scale.

California State Journal of Medicine, San Francisco

October, XV, No. 10

22 Recruiting Observations. J. Jacobs and W. D. Horner, San Francisco.—p. 391.
23 Urologic Diagnosis in General Practice. F. Hinman, San Francisco.—p. 392.
24 Treatment of Eclamptogenic Toxemia of Pregnancy; Report of Cases. E. N. Ewer, Oakland.—p. 401.
25 Radium; Its Local Application as Therapeutic Agent; Report of Cases. R. Duncan, Los Angeles.—p. 406.
26 Malaria Problem in Rice Fields. S. B. Freeborn, San Francisco.—p. 412.
27 Common Errors in Diagnosis of Syphilis of Skin and Mucous Membranes. G. D. Culver, San Francisco.—p. 414.
28 Late Correction of Malunited Fractures of Extremities. P. S. Campbell, San Francisco.—p. 420.

Iowa State Medical Society Journal, Des Moines

October, VII, No. 10

29 Retrospect and Prospect. Oration in Medicine. M. E. Witte, Clarinda.—p. 365.
30 Pleurisy—Symptomatology. J. W. Osborn, Des Moines.—p. 370.
31 Pleurisy—Etiology and Pathology. G. McConnell, Waterloo.—p. 372.
32 Pleurisy—Diagnosis and Prognosis. W. J. Findley, Sac City.—p. 374.
33 Pleurisy—Nonsurgical Treatment. R. L. Parker, Des Moines.—p. 378.
34 Surgical Treatment of Empyema. L. W. Littig, Davenport.—p. 379.
35 Unusual Opportunities for Surgical Work and Original Investigation. W. P. LaForce, Ottumwa.—p. 384.

Journal of Cutaneous Diseases, Chicago

August, XXXV, No. 6

36 *Clinico-Pathologic Study of Unusual Cutaneous Neoplasm Combining Nevus Syringadenomatosus Papilliferus and Granuloma. J. H. Stokes, Rochester, Minn.—p. 411.
37 *Gel Test. A. Strickler, Philadelphia.—p. 426.
38 Perlèche: Review of Literature. J. E. Lane, New Haven, Conn.—p. 433.
39 Sporotrichosis. Clinical and Histopathologic Report of First Case to be Published in New England. J. H. Blaisdell, Boston.—p. 452.
40 Skin Diseases of Porto Rico. W. W. King, Washington.—p. 459.
41 *Cutaneous Metastases in Hodgkin's Disease. H. E. Alderson, San Francisco.—p. 481.
42 *Herpes Zoster Focal Infection. E. S. Lain, Oklahoma City.—p. 486.
43 Dermatitis Factitia and Neurotic Gangrene. C. A. Simpson, Washington.—p. 493.
44 Lupus Erythematosus and Its Management. F. Wise, New York.—p. 500.
45 Erythrodermie Congenitale Ichthyosiforme; Report of Cases and Review of Literature. G. M. MacKee and I. Rosen, New York.—p. 511.

36. **Syringadenoma.**—The case presented by Stokes offers the extremely rare combination of a nevus of the sudoriparous glands with a highly vascular granuloma containing large numbers of lymphocytes, plasma and mast cells in a fibroblastic stroma, suggesting in many ways a granuloma pyogenicum or a vegetating dermatitis. All stages in the histogenesis of such a nevus, according to the conception of origin in epithelial rests and inclusions (Cohnheim), seemed to be represented in the material from this case.

37. **"Gel" Test.**—Eighty-seven Gel tests were made by Strickler and in all, control Wassermanns were also made. In doing the Wassermann, three antigens were employed: cholesterinized beef heart, acetone insoluble lipoids of Noguchi, and alcoholic extract of syphilitic liver. The complement unit was a fixed one, the amboceptor titrated before each test and two units employed; 2.5 per cent. suspension of sheep cells was used. In doing the Gel test, all the serums were subjected to the ammonium sulphate test, while about forty serums were subjected to the acetic acid thorium sulphate test. In this series of eighty-seven serums, fifty-nine patients gave a history of syphilis or had syphilitic lesions; practically all were under treatment. All these serums gave positive Wassermann reactions, while only forty-seven gave positive Gel tests. The serum of twenty-eight individuals suffering with various skin affections and several with no lesions whatever were tested. All gave negative Wassermann tests, sixteen gave negative and twelve serums gave positive Gel tests. Therefore it is Strickler's belief that the Wassermann reaction is the best test for syphilis.

41. **Cutaneous Metastases in Hodgkin's Disease.**—Alderson's patient had Hodgkin's disease involving the cervical, axillary and mediastinal glands, as demonstrated clinically and histopathologically. He developed on both legs hard, immovable, painless, noninflammatory tumors which softened and broke down, leaving ulcers clinically indistinguishable from syphilitic gummas. In spite of numerous negative Wassermanns, including several following two provocative injections of salvarsan, mercury and potassium iodid were administered. The salvarsan-mercury-iodid treatment caused only temporary improvement. Roentgen therapy (Coolidge tube) applied to the lesions, rapidly caused complete filling in of the ulcers. Sections of tissue taken from the edge of one of the ulcers before treatment showed the condition to be metastatic Hodgkin's disease of the subcutaneous tissue and skin.

42. **Herpes Zoster Focal Infection.**—Finding a constant association of zoster with alveolar and tonsillar disease processes, leads Lain to believe that true herpes zoster has its origin in a focal infection.

Journal of Nervous and Mental Disease, Lancaster, Pa.

September, XLVI, No. 3

46 *Symptomatology of Certain Infectious Processes Involving Ciliary Ganglion or Its Connections. L. Archambault, Albany, N. Y.—p. 161.
47 Cerebrospinal Fluid Tests, Especially Gold Reactions in Psychiatric Diagnosis. L. G. Lowrey, Boston.—p. 186.

46. **Symptomatology of Infectious Processes of Ciliary Ganglion.**—In all the cases included in Archambault's paper, the symptoms had an acute onset and followed either evidence of general infection or toxemia or else actual infectious processes about the orbits and nasal fossae. The symptoms were strictly local and repeated neurologic examinations failed to disclose any sign of involvement of the cerebrospinal axis. In Archambault's opinion there can hardly be any doubt therefore that the symptoms observed were dependent on pathologic changes within the orbit. This does not mean that infiltration at the sphenoidal fissure and optic foramen cannot materially interfere with the vascular and subarachnoidean exchanges at the base of the brain and thus determine secondarily more or less functional disturbance referable more particularly to the interpeduncular space and acoustico-cerebellar recess. The nature of the infection in these various cases is difficult to establish even tentatively. In all of them, with one exception, the Wassermann reaction was negative which naturally did not exclude syphilis, and in some of the cases, active antisyphilitic medication was followed by prompt and marked improvement. Even this, however, is not positive proof that the nature of the lesion was syphilitic. In some of the cases specific medication yielded absolutely no results and the condition either remained stationary or cleared up apparently under other forms of treatment. Several of the cases occurred either at the beginning or toward the end of an epidemic of poliomyelitis and some of these patients actually lived in districts from which cases of poliomyelitis were known to have been reported. It occurred to Archambault that these ocular syndromes might possibly represent another clinical modality of poliomyelitis. In most of the cases, the occupation or avocation of the patient was such as to throw undue and persistent strain on the accommodative apparatus.

Archambault concludes that while foci of disease involving the brain stem and more particularly the region of the sylvian aqueduct and corpora quadrigemina undoubtedly do produce, usually along with other symptoms, the accommodation convergence paralysis syndrome, there seems to be little ground for the assumption that this syndrome, occurring as an isolated and purely transitory clinical manifestation, is due to an elective central localization. The fact that this syndrome develops after a number of infectious and toxic states known to give rise essentially to lesions in the peripheral nerves, and that it likewise follows local infectious processes about the orbit and nasal fossa, appears to Archambault to justify the belief that it is dependent on degenerative changes involving either the ciliary ganglia or their immediate connections.

Maine Medical Association Journal, Portland

October, VIII, No. 3

48 Best Method of Securing Pathologic Specimens for Laboratory Examinations. F. N. Whittier, Brunswick.—p. 69.

Medical Record, New York

October 13, XCII, No. 15

49 Osmosis, an Immunizing Factor in Tuberculosis. P. S. Bailey, Fort Bayard, N. M.—p. 618.
50 Management of Decubitus, System in Use at Kings County Hospital. W. Browning, Brooklyn.—p. 622.
51 Recent Advance in Treatment of Kidney Disease. J. R. Williams, Rochester.—p. 624.
52 Electricity Then and Now. W. Travell, New York.—p. 627.
53 Molokai Leper Settlement. E. S. Goodhue, Honolulu, Hawaii. —p. 629.
54 Etiology of General Paralysis. B. Lemchen, Dunning, Ill.—p. 632.
55 Balancing Body Metabolism and Quartz Ultraviolet Light. D. McCaskey, New York.—p. 633.
56 Persistence of Ulceration. J. Van Becelaere, Detroit.—p. 635.

Michigan State Medical Society Journal, Grand Rapids

October, XVI, No. 10

57 Two Cases of Cerebellar Cyst. A. S. Kitchen, Escanaba.—p. 431.
58 Plea for Intelligent Tonsillar Surgery. C. H. Long, Chicago.—p. 436.
59 Pyelitis in Children. H. W. Long, Escanaba.—p. 438.
60 Vesicle Calculus. A. K. Bennett, Marquette.—p. 440.
61 Treatment of Fractures and Results Obtained as Observed in Military Hospitals of Austria. G. J. Korby, Ishpeming.—p. 443.

New Jersey Medical Society Journal, Orange

October, XIV, No. 10

62 Indigestion and Other Protective Symptoms. D. E. Drake, Newfoundland.—p. 379.
63 Increased Eye Tension and Blood Pressure; Report of Twenty Cases. H. Vaughan, Morristown.—p. 386.
64 Education in Development of Physician. G. K. Dickinson, Jersey City.—p. 389.
65 Plea for Greater Exactness in Diagnosis and Treatment of Tuberculosis. R. C. Newton, Montclair.—p. 391.

New York Medical Journal

October 13, CVI, No. 15

66 Psychologic and Therapeutic Value of Studying Mental Content During and Following Epileptic Attacks. L. P. Clark, New York.—p. 677.
67 Onions in Tuberculosis. W. Lintz, New York.—p. 683.
68 Health Insurance. W. P. Cunningham, New York.—p. 683.
69 Id. A. Schachner, Louisville, Ky.—p. 686.
70 War Depletion of American Medical Profession. A. L. Benedict, Buffalo.—p. 690.
71 Differential Diagnosis in Cases of Suspected Pulmonary Tuberculosis. A. Minnig, Denver.—p. 692.
72 Portable Operating Table Attachment. T. C. Stellwagen, Jr., Philadelphia.—p. 694.
73 Simple Painless Technic for Salvarsan Intravenous Administration. C. C. Miller, Chicago.—p. 696.
74 Circumruption of Prepuce in Lieu of Circumcision. F. K. MacMurrough, Jersey City, N. J.—p. 698.

Northwest Medicine, Seattle

October, XVI, No. 10

75 Medical Profession and War. S. C. Baldwin, Salt Lake City.—p. 291.
76 Principles Underlying Successful Treatment of Achylia Gastrica and Chronic Connective Tissues Lientery. N. W. Jones, Portland, Ore.—p. 295.
77 Physiology of Gallbladder Under Normal and Morbid Conditions. C. S. Leede, Seattle.—p. 298.
78 Report of One Hundred and Five Consecutive Gallbladder Operations. Primary Cholecystectomy vs. Cholecystostomy. A. A. Matthews, Spokane.—p. 302.
79 Autoserum Treatment of Chorea (Goodman); Report of Cases. E. M. Tarr, Boston.—p. 308.
80 Four Point Survey for Localization of Foreign Bodies Without Use of Roentgenograms. E. O. Houda, Tacoma.—p. 311.

Ohio State Medical Journal, Columbus

October, XIII, No. 10

81 Sarcoma of Stomach. F. Warner, Columbus.—p. 647.
82 Some Bacteriologic Findings in Conjunctivitis. R. B. Metz, Cleveland.—p. 649.
83 Points in Treatment of Syphilitic Brain Conditions. G. H. Williams, Columbus.—p. 651.
84 Tumors of Urethra and Vesical Sphincter. J. F. Elder, Youngstown.—p. 653.
85 Veratrum Viride and Pilocarpin Hydrochlorate. H. F. Biggar, Cleveland.—p. 655.
86 Inflammation of Eyes of New-Born; Observations of Operation of Present Law. J. E. Bauman, Columbus.—p. 656.

Oklahoma State Medical Association Journal, Muskogee

October, X, No. 10

87 Syphilis of Nervous System. D. W. Griffin, Norman.—p. 383.
88 Hereditary Syphilis. W. L. Kendall, Enid.—p. 387.
89 Ocular Manifestations of Syphilis. J. H. Barnes, Enid.—p. 388.
90 Early Treatment of Syphilis; Its Prevention and Cure. R. T. Edwards, Oklahoma City.—p. 392.
91 Treatment of Latent Syphilis. P. P. Nesbitt, Muskogee.—p. 397.
92 Application of Clinical Laboratory to Diagnosis and Treatment of Syphilis. O. J. Walker, Oklahoma City.—p. 400.

Philippine Journal of Science, Manila

March, XII, Sec. B, No. 2

93 *Experimental Cholera Carriers and Immunity. O. Schöbl and C. S. Panganiban, Manila.—p. 43.
94 Anatomicopathologic Lesions in One Thousand Filipino Children Under Five Years of Age. M. P. Mendoza-Guazon, Manila. —p. 51.
95 *Bacteriologic Investigation of Feces and Bile of Cholera Cases and Cholera Carriers. B. C. Crowell and J. A. Johnston, Manila.—p. 85.

93. **Cholera Carriers and Immunity.**—Schöbl and Panganiban found specific immune bodies in the blood serum of experimental cholera carriers (guinea-pigs and rabbits). Specific immune bodies were found to be absent in the normal bile of a highly immunized rabbit. In confirmation of Viole's findings specific antibodies were found to be present in the gallbladder contents of infected rabbits. The percentage of

takes in guinea-pigs that received preventive inoculation or vaccine treatment was as high as in untreated carriers. Preventive vaccination and vaccine therapy effected no apparent shortening of the duration of cholera carriers in guinea-pigs.

95. **Feces and Bile of Cholera Cases and Carriers.**—The intestinal contents and the bile of 269 cases of cholera and cholera carriers were examined by Crowell and Johnston. In 212 cases of cholera the vibrio was found in the bile in 65.2 per cent. and only in the bile in 5.7 per cent. In thirty-two cholera carriers detected after death, the cholera vibrio was found in the bile in 75 per cent. and only in the bile in 43.7 per cent. In cholera carriers the vibrio was present in the bile in 10 per cent. more cases than in cholera cases and only in the bile in 38 per cent. more than in cholera cases. From this the importance of routine examination of both bile and feces becomes apparent. Five patients that were known to have been carriers before death were examined after death, and only in the one with the shortest period between detection and death (thirty-seven days) was the vibrio found. In that case the vibrio was isolated from the bile only. Thirty strains of nonagglutinable vibrios, isolated from the feces and bile of cholera cases, cholera contacts, and others, have been studied. When first isolated, these were not agglutinated by high titer cholera immune serum. By growth in bile eight of these strains acquired the agglutinability. Five of these eight strains retained this property, and the other three lost it after cultivation for a period of two months. In six cases that were clinically and anatomically cholera, the cholera vibrio was not isolated from either the feces or the bile. Such cases occur in a large series of cholera cases.

Southwestern Medicine, El Paso, Texas

September, I, No. 9

96 Traumatic Hernia. J. E. Bacon, Miami, Ariz.—p. 9.
97 Successful Use of Autogenous Vaccines in Mixed Infection in Tuberculosis. W. R. Smith, El Paso.—p. 13.
98 Carcinoma of Male Breast; Report of Case. C. S. Vivian, Humboldt, Ariz.—p. 17.
99 Smallpox. T. J. Bush, El Paso.—p. 21.
100 Medicosurgical and Legal Aspect of Few Injury Cases, as Seen through Eyes of Corporation Physician. W. A. Holt, Globe, Ariz.—p. 26.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

October, XXV, No. 10

101 Autointoxication. C. W. Tedrowe, Elk City.—p. 247.
102 Tubal Pregnancy; Report of Case. F. M. Sanger, Oklahoma City.—p. 251.
103 Double Undescended Testicles; Report of Case. F. M. Sanger, Oklahoma City.—p. 253 .

Surgery, Gynecology and Obstetrics, Chicago

October, XXV, No. 4

104 *Report of Eight Cases of Syphilis of Stomach. W. A. Downes, New York.—p. 361.
105 Complete Bony Ankylosis of Jaw; Report of Three Cases Cured by Operation. W. P. Carr, Washington, D. C.—p. 367.
106 *Recurrence of Gallstones. J. B. Deaver, Philadelphia.—p. 371.
107 America's Place in Surgery of World. T. S. Cullen, Baltimore.—p. 376.
108 *Substitution of Anal for Vesical Sphincter in Certain Cases of Inoperable Vesicovaginal Fistulae. R. Peterson, Ann Arbor, Mich.—p. 391.
109 Subtotal Thyroidectomy. W. Bartlett, St. Louis.—p. 402.
110 Study of Modern Operations in Hypospadias from Anatomic and Functional Standpoint. J. E. Thompson, Galveston, Texas.—p. 411.
111 Conservative Foot Surgery; Report of Case. J. P. Lord, Omaha.—p. 422.
112 Caisson Bronchoscopy in Lung Abscess Due to Foreign Body. C. Jackson, Philadelphia.—p. 424.
113 Cystic Hygromas and Other Tumors Occurring in Infancy; Report of Cases. R. Winslow, Baltimore.—p. 428.
114 Ligation or Excision of Pelvic Veins in Treatment of Puerperal Pyemia. C. J. Miller, New Orleans.—p. 431.
115 Treatment of Puerperal Pyemia. B. C. Hirst, Philadelphia.—p. 452.
116 Nonoperative Treatment of Gunshot Fractures of Femur. J. R. Eastman, Indianapolis, and R. B. Bettman, Chicago.—p. 456.
117 Observations in Military Surgery. W. A. Clark, Chicago.—p. 463.

104. Abstracted in THE JOURNAL, Jan. 27, 1917, p. 308.
106. Abstracted in THE JOURNAL, June 20, 1917, p. 222.
108. Abstracted in THE JOURNAL, Jan. 20, 1917, p. 221.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

September 29, II, No. 2961

1 *Etiology and Treatment of War Neuroses. A. F. Hurst.—p. 409.
2 *Investigation of Trench Nephritis by Means of Phenolsulphonephthalein. A. G. Auld.—p. 414.
3 *Occurrence of Spirochetes in Urine. J. L. Stoddard.—p. 416.
4 *Spirochetes Occurring in Urine of Cases of Pyrexia of Unknown Origin. S. W. Patterson.—p. 418.
5 Acute Syphilitic Meningitis. S. A. K. Wilson and A. C. E. Gray.—p. 419.
6 Eusol Treatment of Wounds Infected with Bacillus Pyocyaneus. P. Turner and G. Richardson.—p. 421.
7 Ionic Medication: Method of Administration. L. Kesteven.—p. 423.
8 Case of Acholuric Jaundice Treated by Splenectomy. R. Hill.—p. 424.

1. **Treatment of War Neuroses.**—Hurst discusses: 1. Exhaustion resulting in neurasthenia and soldier's heart. 2. Emotions resulting in stupor and amnesia, psychasthenia, hysteria, hypersuprarenalism and hyperthyroidism, and exaggerated defensive reflexes: (*a*) stupor and amnesia; (*b*) psychasthenia; (*c*) hysterical symptoms; (*d*) hypersuprarenalism and hyperthyroidism; (*e*) exaggerated defensive reflexes. 3. Shell shock: 1. Pure concussion: (*a*) cerebral concussion; (*b*) spinal concussion. 2. Hysterical symptoms grafted on to organic basis of cerebral or spinal concussion.

2. **Phenolsulphonephthalein Test in Trench Nephritis.**—The cases studied by Auld were young soldiers discharged from the hospitals abroad after the acute symptoms had subsided. As a matter of fact, the test is useless in acute cases. The complete results are based on forty-two selected cases. The routine consisted in making the test soon after the patient's admission, and repeating it at intervals of about three weeks. Concomitantly the blood pressure was recorded. The cases in the second month of the disease showed phenolsulphonephthalein elimination varying from 15 to 50 per cent., or over in one hour. If, within three months from the onset of the disease, the phenolsulphonephthalein excretion rises to 40 per cent., or over in one hour, recovery will be good, even should albuminuria continue for another two months or possibly longer. For part of this time casts may also be present. If, at the end of the third month, the phenolsulphonephthalein excretion be under 30 per cent. in one hour, notwithstanding a slight degree of albuminuria, or with intermitting albuminuria, recovery will be protracted, and in some of the cases unsatisfactory. If, at the end of four months the phenolsulphonephthalein excretion reaches 40 per cent., or over, ultimate recovery is the rule, even should the albuminuria last for several months longer. If the excretion remains persistently low (15 to 30 per cent.) up to the fourth or fifth month, the prognosis is unfavorable without reference to the presence or degree of albuminuria. Several such patients reporting themselves after eight to nine months still presented a low index of elimination and slight albuminuria. As to the final issue, it is difficult to say, but the fact that they all had either normal blood pressures, or slightly over, seems to presage in some of these a favorable result.

3. **Spirochetes in Urine.**—A series of 100 men without history or symptoms of relapsing fever showed intra-urethral spirochetes in 33 per cent. of the cases. If spirochetes of the refringens type are included, the incidence rises to 44 per cent. The spirochetes occurred in about 1 in 2¼ men sick of miscellaneous medical and surgical conditions, and in 1 in 5 of healthy men. Stoddard believes that the variety of organisms makes it improbable that the mere finding of spirochetes in the urine can have any diagnostic value in relation to the relapsing fevers until definite morphologic or other differences are established between the various normal and pathogenic varieties.

4. **Spirochetes in Urine of Cases of Pyrexia.**—Patterson states that spirochetes may occur in: 1. A disease with acute onset with chills and vomiting, pain in the abdomen, usually more marked in the right upper quadrant, with continued fever for several days, often with enlargement of the spleen

and herpes of the lips. The pulse rate is not increased, and is usually slowed to 50 or 60 beats a minute in convalescence. There is a leukocytosis of 12,000 to 25,000 with relative increase in the large mononuclears. The cases, if an attempt is made at diagnosis, come to the base as "appendicitis," or "N. Y. D. abdominal"—the initials "N. Y. D." standing for "not yet diagnosed." In these patients Patterson finds spirochetes almost constantly in the urine. 2. The relapsing type of P. U. O. (trench fever) with the characteristic periodic rises of temperature, myalgic and periosteal pains, and leukocytosis with or without enlargement of the spleen, in which an improving technic has enabled Patterson more and more frequently to find a spirochete in the urine during and immediately after the exacerbations of temperature.

Journal of Laryngology, Rhinology and Otology, London

September, XXXII, No. 9

9 An Air Raid Case. M. Yearsley.—p. 273.
10 Cases of Facial Deformity Treated in Department of Plastic Surgery at Cambridge Hospital, Aldershot. H. D. Gillies.—p. 274.
11 Ozena Among Various Races of Earth. J. N. Roy.—p. 283.

Lancet, London

September 22, II, No. 4908

12 *Wound Treatment by Introduction of Living Cultures of Spore-Bearing Anaerobe of Proteolytic Group. R. Donaldson and J. L. Joyce.—p. 445.
13 *Liquid Tight Closure in Treatment of Wounds. W. H. Taylor and N. B. Taylor.—p. 452.
14 *Operation for Radical Cure of Inguinal Hernia. R. V. Slattery. —p. 455.
15 Blood Pressure and Surface Temperature in One Hundred and Ten Cases of Shell Shock. E. M. N. Green.—p. 456.
16 Fractured Base of Skull: Subsequent History of Case and Its Termination Twenty-Four Years After Accident. J. B. Christopherson.—p. 458.
17 Unusual Renal Calculi with Severe Hemorrhage as Only Important Symptom. J. D. Malcolm.—p. 459.
18 Awkward Prescriptions. A. W. Bromley.—p. 472.
19 Biologic Aspects of Warfare. H. Campbell.—p. 469. To be concluded.

September 29, No. 4909

20 Malaria. C. Christy.—p. 485.
21 *Treatment of Subtertian Cerebral Malaria with Quinin and Galyl. A. W. Falconer and A. G. Anderson.—p. 486.
22 Surgery Next Door to Front. T. B. Layton.—p. 488.
23 *Germicidal Power of Flavine. R. T. Hewlett.—p. 493.
24 Open Flap Method of Treating Perforating Brain Wounds. J. G. Hunt.—p. 494.
25 Mediastinitis as Cause of Heart Failure. H. L. Whale.—p. 495.
26 Biologic Aspects of Warfare. H. Campbell.—p. 505.

12. **Wound Treatment by Living Cultures of Spore-Bearing Anaerobes.**—The key to the situation according to Donaldson and Joyce depends on two observations: one clinical, the other bacteriologic. The former consists in the fact that cases which smell (and the odor is one of the most characteristic features of these cases) do well, while those which do not make no headway. The bacteriologic observation consists in the discovery that a certain bacillus is apparently constant in the wounds which emit the odor, while it is absent or cannot be recovered from those which do not smell. This bacillus is a spore-bearing anaerobe of a saphrophytic nature and belongs to the proteolytic group of organisms; the group which includes *B. tetani* and *B. edematis-maligni*. Unlike the latter, it appears to be nonpathogenic to the animals experimented on, and, what is of more importance, appears to be nonpathogenic for man when introduced into wounds. Further, it does not appear to set free any toxins injurious to the patient in the course of its action on the dead tissues. For convenience sake, the authors call it the "reading" bacillus. It acts, apparently, in virtue of its proteolytic powers only on devitalized tissue, and possibly on toxalbumins, and appears to possess no power of attacking healthy structures. Special stress is laid on the necessity of recognizing the fact that one of the chief factors which keep a wound septic is the presence of devitalized tissue in that wound. This acts as a base from which pathogenic organisms attack the body.

The surgical or excision treatment of wounds apparently recognizes this, but only aims at removing macroscopically devitalized tissues, and in doing so inflicts a fresh trauma liable to reinfection. For this Donaldson and Joyce propose to substitute the "reading" bacillus in a living form. The organism is probably present in the larger number of infected wounds, but requires more or less anaerobic conditions before it can come into play. These are provided by the pack method of treatment, but the authors are inclined to think that salt is not a necessary adjuvant and plays a very small rôle, if any. This seems indicated by the fact that an inert substance like sphagnum moss for packing gives equally good results. It is essential, however, that the wound be laid wide open in the first instance, exposing every pocket and sinus, so that the packing may completely fill the wound.

13. **Liquid Tight Closure in Wound Treatment.**—For the purpose of bringing fresh solution in contact with as large an extent of the wound cavity as possible, the authors created an ebb and flow in the wound by repeatedly filling it under pressure and allowing the fluid to escape. A catheter was inserted having a hole about its middle discharging in the center of the wound and its lower end tied off. The escape of fluid was obstructed by plugging the wound openings with gauze. Irrigation was regulated by a clip on the tube connecting the catheter with a reservoir. Distention of the wound occurred during the flow, followed by leakage and collapse of its walls when the flow was stopped, thus furthering the mixing of fluids in the wound much as the interchange of gases is promoted in the lungs by the act of breathing. In a sense the wound was made to breathe. This tidal movement in the wound is important. It is essentially a cleansing action. In wounds whose ramifications are many and tortuous this plan is particularly efficacious and has given excellent results. Closely associated with this washing of the wound is its ventilation. Exposing a deep wound to the air is of little avail unless air containing fluids are made to penetrate its depths. This is precisely what tidal flushing does. The technic of the procedure is described in detail.

14. **Radical Cure of Inguinal Hernia.**—In Slattery's opinion the importance of repairing the defect in the fascia transversalis in an operation for the radical cure of an oblique inguinal hernia has never been fully appreciated. Any operation which leaves a large or unsupported defect in the fascia transversalis or interferes with the support which the internal oblique muscle normally affords in the inguinal region must fail. Slattery frees the fascia transversalis thoroughly from the retroperitoneal fatty tissue both upward under the conjoined tendon and downward to expose the deep aspect of Poupart's ligament. The fleshy arch of the internal oblique muscle is retracted and forceps applied to the glistening fascia on the deep aspect of the conjoined tendon so as to draw it into the wound. This fascia brings with it the lower aponeurotic portion of the transversalis muscle. Mattress sutures (three or four generally suffice) are used to approximate this fused fascia and aponeurosis to the deep aspect of Poupart's ligament. It is important that the remains of the fascia transversalis still adherent to Poupart's ligament and the cord should not intervene between the structures opposed.

21. **Subtertian Cerebral Malaria Treated with Quinin and Galyl.**—In six cases cited by Falconer and Anderson galyl was used in association with large doses of quinin. That galyl alone can cause the disappearance of the ring forms of parasite from the peripheral blood stream is shown by two cases cited. The first six cases reported were all seriously ill with definite subtertian cerebral malaria. All the patients recovered, with the exception of one patient who died of a complicating croupous pneumonia. All had received quinin, several of them large doses by the mouth, intramuscularly, and intravenously, without clinical improvement. In all of them, with the exception of the fatal case, the clinical improvement after the administration of galyl was striking and immediate. In none of the cases did the injection produce any unpleasant results, although several of the patients appeared almost moribund before the injection. In one case in which it was considered inadvisable to give quinin, galyl alone caused the disappearance of the parasite from the peripheral blood and produced a striking improvement in the condition of the patient. In another case the patient took quinin in any form with great difficulty, and although she had taken a con-

siderable amount of quinin by the mouth and intramuscularly, ring forms of the subtertian parasite were constantly present in the blood. After the first half dose of galyl there was a notable clinical improvement, but the parasite could still be demonstrated in the blood. After the second dose the parasites at once disappeared from the blood. The disease ran a protracted course, and she developed a periostitis of the left humerus, but in spite of repeated examinations parasites were not again demonstrated in the blood during the rest of her stay in the hospital. The authors conclude that while the results of the combined galyl and quinin treatment have been encouraging enough to justify a further trial, the addition of galyl in no way diminishes the necessity for quinin. In cases in which on account of idiosyncrasy, quinin is impossible a valuable substitute may be found in galyl.

23. **Germicidal Power of Flavine.**—From Hewlett's experiments the germicidal value of flavine comes out very much lower than that stated by Browning and his co-workers. The result with pus is particularly poor and many disinfectants equal or surpass flavine and have the advantage of a much more rapid action.

Archives des Maladies de l'Appareil Digestif, etc., Paris

June, IX, No. 9, pp. 229-296

27 *Albert Mathieu. Editorial.—p. 229.
28 *Congenital Megacolon and Megarectum. L. Bard.—p. 233.
29 *Exploratory Laparotomy with Advanced Cancer of the Stomach. Le Noir and Gardin.—p. 248.
30 *Fermented Whey in Treatment of Certain Forms of Dyspepsia. G. Moruzzi.—p. 254.
31 *Stool Signs of Insufficiency of the Stomach. R. Goiffon.—p. 262.
32 Jejunal Ulcer after Gastro-Enterostomy. Urrutia.—p. 272.
33 Pathologic Reactions of the Colon—Colonic Crises—and Pancreas Organotherapy. E. Savini.—p. 276.

27. **Mathieu and the Archives.**—The sudden death of Albert Mathieu is not to interfere with the publication of this monthly he founded nine years ago for records of research on diseases of the digestive apparatus and of nutrition. It is to be carried on by his former assistants, J. C. Roux, the internist, and P. Daval, the surgeon. It was one of Mathieu's principles to insist on the close and continuous collaboration between the internist and the surgeon in this line of work. The numerous cases of severe and rebellious enteritis in soldiers in his service during the war threw more light on gastro-intestinal pathology, and he had just finished the revision of the third edition of his textbook with this title when death surpised him.

28. **Idiopathic Dilatation of the Rectum.**—Congenital dilatation of the bladder, colon, and rectum has been a special field of Bard's research. He here describes cases of megarectum in which there was abnormal frequency of bowel movements. In one case, in a man of 48, previously published, the rectum filled the entire small pelvis, extending up to the diaphragm. Except for a tendency to constipation, there had been no trouble from this megarectum which was a necropsy surprise, the nature of the tumor not being suspected. In a recent case the diagnosis was made in the clinic. The man of 45 had had for years six or seven daily soft stools. When he had to defecate twice in the night, he called it an attack of diarrhea, but no medication modified it and there were no symptoms outside of the abnormally frequent soft stools. The rectum was much dilated but not so much as in the first case in which constipation dominated the clinical picture. In two other cases of megarectum with the diarrheic tendency there was also megacolon, so that diarrhea with megacolon should not be ascribed to colitis until megarectum has been excluded. In fact, the diarrhea from the megarectum may mask the constipation from the megacolon. This may lead to serious mistakes in diagnosis, as in still another case he describes in which various tedious courses of treatment had been futilely applied by different specialists to cure the assumed chronic colitis. This patient was a man of 60, member of a foreign embassy, not at all neuropathic and in good general condition but annoyed at having four or five passages of the bowels during the night, with two during the day. Roentgenoscopy showed the rectum abnormally dilated and long and the colon also. In these cases of megarectum, medication to cure the diarrhea had no effect as it did not remove the cause, but great benefit followed lavage of the rectum, rinsing it clean and thus putting an end to the incomplete spontaneous evacuation which was the cause of the frequent defecation. With megabladder, in the same way, there is only fragmented evacuation at a time, and hence the pollakiuria with megabladder is exactly analogous to the pollakicoprosis with megarectum.

29. **Exploratory Laparotomy with Advanced Cancer of the Stomach.**—Lenoir and Gardin report a case of advanced gastric cancer in which an exploratory laparotomy improved conditions materially. The patient was a woman of 54 who had had for six years symptoms suggesting hyperchlorhydria. Then during the following year, the vomiting and hematemesis became more frequent with other symptoms suggesting malignant disease, including atrocious pains and loss of weight. At an exploratory laparotomy the neoplasm was found too extensive for removal and the abdomen was closed, but prompt and material improvement followed. The pains in the stomach region disappeared for weeks at a time and the appetite returned, the patient gaining nearly 30 pounds. Secretory conditions improved to a remarkable extent, and the general benefit was so great that the diagnosis of cancer was doubted for six months, but then the symptoms returned. The woman lived eleven months after the operation. More than this could not have been anticipated from a more radical operation. Mathieu reported a similar case in 1895; he attributed the benefit to the effect of the operation on the mind. The pains abolished by an exploratory laparotomy, he thinks, must have been of central origin. A number of similar cases are cited, with from two to eighteen months' survival. The effect of the exploratory laparotomy is probably analogous to the influence of a laparotomy on tuberculous peritonitis.

30. **Unfermentable Diet.**—Moruzzi's publication on the advantages of peptonized and fermented whey in treatment of dyspepsia with acid or alkaline fermentations, in adults, was summarized in these columns, July 7, 1917, p. 75.

31. **The Stools with Gastric Insufficiency.**—Goiffon reviews in detail the coprologic signs revealing defective functioning on the part of the stomach. He thinks this is more common than generally believed, and that it may be responsible for both gastric and intestinal troubles. When the stools look brown or black on the surface and a brighter color inside, this, he says, indicates rapid oxidation of the bile pigments, and testifies to intense albuminoid putrefaction. The stools with gastric insufficiency are also liable to contain bunches or filaments of connective tissue and small scraps of potato, and the microscope shows muscle fibers. Treatment is with hydrochloric acid, and it has to be given in doses of from 1.5 to 3 gm. a day. Mathieu used to prescribe it: 20 gm. hydrochloric acid in 180 gm. distilled water. From one to three teaspoonfuls is added to a glass of sweetened water into which the white of an egg has been stirred. This glassful is to be sipped during the meal. The hydrochloric acid even in this amount does not replace the missing gastric juices, but it is enough to start the normal play of the reflexes, so that the motor functioning is restored to normal.

Bulletin de l'Académie de Médecine, Paris

September 4, LXXVIII, No. 34, pp. 163-194

34 Discussion on the Declining Birth Rate. Pinard and others.—p. 165. Continuation.
35 *Repression of Criminal Abortions. Berthélemy.—p. 190.
36 *Sodium Arseniate in Treatment of Soft Chancre and Chancroid. Goubeau.—p. 192.

September 11, No. 35, pp. 195-225

37 *Shield Worn to Protect Chest and Abdomen. E. Delorme.—p. 206.
38 *The Declining Birth Rate. E. Maurel.—p. 213.
39 The Rôle of the Flying Surgical Hospital. Doisy and Marcille.—p. 219.

35. **Criminal Abortions.**—This article is by a professor in the university law department. He discusses the legal measures that should be adopted to arrest the increasing number of criminal abortions, arguing that criminal abortion should be classed with espionage, counterfeiting money, anarchy, etc., as the crime against society is more important than the indi-

vidual character of the crime, and the informer should be guaranteed an absolute pardon. "Is the defense of the race," he asks, "of lesser importance than the defense of the money supply?" The birth-control propaganda should be suppressed, as the arguments in favor of birth control apply also to voluntary abortion. Criminal abortion cases should not be given a jury trial, as the jurymen do not realize the social danger of the crime, and they yield to intimidation by the abortionists, usually powerful and always with a protecting backing. Another point which he emphasizes is that a physician cited in a suit for criminal abortion should be relieved of the ban of professional secrecy, so that his testimony can be used against the abortionists "toward whom there can be no professional obligation." The action of the police should be reenforced by granting to medical syndicates, to the services pecuniarily interested, and to associations for increasing the population and to morality propaganda associations, the right to bring suit. Isolated, none of these measures is very effectual, but all together, with penalizing the convicted abortionists, would certainly reduce the number of such cases. The fear of punishment has always been one of the determining causes of virtue. In conclusion, Berthélemy stated that he had submitted this article to various medical and legal authorities, including the Assistance Publique and the Society of Legal Medicine, and obtained their endorsement.

36. **Sodium Arsenate in Treatment of Soft Chancres.**—Goubeau states that he and three other army physicians for a year and a half have been applying in treatment of soft chancre and chancrellous bubo, sodium arsenate in a 2 per cent. alcohol (95 per cent.) suspension. They paint the soft chancre with this daily, and if there is a complicating bubo they inject into it 1 or 2 c.c. of a 1 per cent. aqueous solution of the sodium arsenate, repeating on alternate days. Thanks to this method, the average course of treatment was shortened to nineteen days in 149 cases of chancre without bubo, the cure being complete in from four to ten days in the early cases. The most instructive case was that of a negro from Africa who had had vast soft chancres for over six months, rebellious to arsenobenzol and mercury. Five applications of the sodium arsenate suspension transformed the angry lesions and repair proceeded rapidly with a complete cure in a month.

37. **Shield for Chest and Abdomen.**—Delorme pleads that as the steel helmet has proved so useful in protecting against and attenuating skull wounds, a similar steel guard should be worn to protect the chest and abdomen. He exhibited a model breast plate for the purpose, and urged the adoption of something of the kind. His model is made in two overlapping parts.

38. **The Declining Birth Rate.**—Maurel suggests among other measures to arrest the decline of the birth rate, that pensions should be paid to families in proportion for each child until it becomes self-supporting, and that the parents in their old age should be given a pension proportionate to the number of children they have raised.

Lyon Médical

September, CXXVI, No. 9, pp. 397-444.

40 *Acute Typhoid Meningitis. S. Bonnamour and A. Macrygenis. —p. 397.
41 Camphorated Alcohol in Treatment of Extensive Industrial Wounds; Three Cases. Briau.—p. 404.
42 *Mammitis in Soldiers with Malaria. C. Garin and Coullard-Descos. —p. 410.

40. **Typhoid Meningitis.**—The young woman had a typical typhoid fever except for intense headache, and typhoid bacilli were found in the lumbar puncture fluid. Bonnamour remarks that he knows of only seventeen authentic cases of purulent typhoid meningitis with bacilli in the spinal fluid, and one with paratyphoid bacilli.

42. **Mammitis in Soldiers with Malaria.**—Garin found mammitis in five of 800 soldiers under treatment for malaria, and five other cases have recently been reported by others. The mammitis caused no trouble for several months but as suppuration developed there was considerable pain. In two of the men the other mamma suppurated a month or two after the first. In one case there was secretion of actual colostrum during the course of the suppurating mammitis.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 8, XLVII, No. 36, pp. 1153-1184

43 *Anatomic Research on the Prevalence of Tuberculosis. **A.** Reinhart.—p. 1153.
44 *Treatment of Flatfoot. H. v. Salis.—p. 1162.
45 Fungus as Substitute for Cotton to Plug Culture Tubes. **B.** Galli-Valerio.—p. 1168.
46 Incandescent Electric Light for Improvised Superheated Air Apparatus. Debrunner.—p. 1168.

43. **Prevalence of Tuberculous Lesions in Cadavers.**—Reinhart writes from Berne where for eighteen months he made a special study of all the cadavers (460) at the Pathological Institute, seeking for evidences of tuberculosis. No traces of tuberculosis were found in the 28 newborn infant cadavers, but 29.16 per cent. of 72 children under 16 had manifest tuberculosis, in a progressive stage in all, although only 16.8 per cent. had died from tuberculosis. He cites statistics from other large cities showing from 10 to 42 per cent. with tuberculosis in the child cadavers, the numbers reported on varying from 88 to 848. Reinhart's material confirms the increasing prevalence as the children grow older, only 7.14 per cent. showing tuberculosis under one year. In the adult cadavers, tuberculosis lesions were found in 96.38 per cent. of the total 360. Only in thirteen cadavers was the search negative, and of these, nine were under 30. Other statistics show a range from Beitzke's 51.4 per cent. (Berlin), to Naegeli's 98 per cent. (Zurich). The tuberculosis mortality was highest between 30 and 40, rapidly declining after this age. In 63.9 per cent. of the adult cadavers the tuberculous lesions were in a clinically healed stage, the proportion of these cases increasing with each decade. He does not include small induration of the apex among the positive findings, but he was impressed with the frequent coincidence of these indurations with calcified foci in the bronchial glands on that side. This coincidence was marked in 122 of 230 cadavers. This percentage of 63.9 healed cases is the largest yet published, he thinks. The difference between town and country dwellers was slight, 93.9 per cent. of the 140 town people and 98.1 per cent. of the 211 country dwellers. The tuberculous mortality rate was slightly higher for the latter, 27.37, in comparison to 22.15 per cent., but the proportion of active progressive cases was only 7.5 per cent., in the country people to 14.9 per cent. in the towns. The data presented confirm the wide prevalence of tuberculosis, and that in most people it heals. The data show further that it is doubtful, to say the least, whether tuberculous infection occurs generally before the twentieth year.

44. **Flatfoot.**—Salis refers to what he calls *Spreizfuss*, a form in which the normal arch of the metatarsal bones sags, the curve being downward instead of upward. Insoles do not help this straddling of the bones, but great relief is obtained by a tight cuff worn over the front part of the foot back of the root of the toes. This cuff laces on top of the foot and laces further at the side at the broad end. By this means the arch of the metatarsal bones is forced up into place and held there, maintaining it in a dorsal convex instead of a plantar convex position. Before applying this corset-stuff cuff, he softens the skin of the foot, getting rid of callouses, and corrects the straddle foot with a plaster dressing. During this time the foot cannot be used much. In the milder cases this treatment corrects the trouble completely in a few months; in others the cuff has to be worn permanently. It slips easily on and off.

Annali d'Igiene, Rome

August, XXVII, No. 8, pp. 477-548

47 *The Reform in the Army Ration. F. Rho.—p. 477.
48 *The Army Ration in Italy. S. Baglioni.—p. 487.
49 *The Navy Ration. C. M. Belli.—p. 503.
50 The Morphology of the Hemorrhagic Jaundice Spirochete. **D.** C. Bianchi.—p. 510.

47. **The Army Ration in Italy.**—Rho says that when the war started every effort was made to give the soldiers the best food possible, and the ration was based on the Voit-Rubner

estimate of the calory needs. But time soon showed that what may be proper for a people of heavy eaters did not suit at all the Italian soldiers, coming from rural homes where meat is not on the every-day menu. Pessimistic sociologists have said that the Italian populace is inadequately nourished from a lack of nitrogenous substances in their diet, and they have cited this as an argument to demonstrate and explain the alleged inferiority of the Latin race. But Rho declares that southern Italy has furnished emigrant labor to the world that can stand comparison with any for the ability to stand fatigue, although bread, vegetables and cereals is the principal diet. Carbohydrates form the main articles of diet in rural populations nearly everywhere from the oatmeal of the Scotch to the potatoes of the Irish and the rice of Asia. Folena's experiments on himself (1912) showed that he could maintain his nitrogen balance with a nitrogen minimum of 28.9 gm. He asserts that it is possible to keep at the normal physical and mental level with a protein intake of only 0.6 gm. daily per kg. of body weight. Rho cites further Chittenden, Hindhede and others and the unfavorable experiences with the excessive meat ration given the Italian soldiers, all tending to show the necessity for reform in the soldiers' ration. A commission of military or militarized hygienists and physiologists was appointed to study the subject. Their report was accepted and acted on, with the saving of 30,000 head of cattle each month as only 60,000 had to be slaughtered instead of the 90,000 called for by the previous ration. The number of calories provided in the new ration does not surpass 3,000—except in winter and for the troops in the mountains—but even this is more than Chittenden regarded as necessary. All the reports from the army and navy are favorable for the new ration during the six months it has been in operation.

48. **The Soldiers' Ration in the Italian Army.**—Lieut.-Col. Baglioni comments on the great difference between conditions in this war and in previous wars when men lived in open camps. There is no longer the necessity for long marches and physical encounters and effort. The men crouch in shelters and get comparatively little exercise, while their nerves are being constantly on the strain. The ration possibly called for in other wars is not needed in this, and does actual harm. Another difference between this and previous wars is that the food cannot always be served directly when cooked, but has to be carried long distances to the men in the shelters. The food undergoes various changes during this transportation, in addition to its getting cold, so that it loses in palatibility. Among the first steps taken to improve on the former ration was the training of large numbers of men to serve as cooks for the special conditions of the present warfare. The meat ration was reduced from 375 to 250 gm. with optional fish or canned meat two days in the week, and 100 gm. cheese instead of meat on Fridays, with a corresponding increase in rice or pastes (macaroni, etc.). Provision was also made for cabbage and other vegetables, and 40 gm. of cheese every day. The ration includes also 15 gm. of lard or oil on the three beef days and 20 gm. on the four days of vegetables. Another form of condiment, he says, which is almost indispensable for Italians is the tomato, and provision is made for 15 gm. daily of the fresh or canned tomatoes, or the extract representing 30 per cent. of the dry residue. Variety is also ensured by 10 gm. of onions, garlic, etc.; pepper and spices, 0.5 gm.; salt 20 gm., and on the days when one meal consists of pastes, 10 gm. of grated cheese are allowed for it. For cooking soups and pottage, portable cookers have been found extremely convenient for the men on the firing line (*casse di cottura*), and they are being used more and more extensively in the civilian population. But they cannot be used for preparation of the concentrated tomato extract, boiling the onions, etc. On this account the military authorities and certain firms put up in cans a mixture of meat, vegetables and tomato juice. The inside of the can is varnished to protect the food against corrosion of the metal. The mixture of fats and proteins in the can is varied by different makers and at different times to avoid monotony. The ration of this is 25 gm. which gives a relish to the macaroni or rice served with it. By the change in the ration thus provided, beef cattle and grain are saved in large proportions while the cheese, tomatoes, potatoes, etc., are domestic products. Camp jaundice rapidly subsided on addition of vegetables to the diet of the men in the advanced posts, as also certain forms of scurvy and nephritis. In conclusion eight pages of tables are given showing the comparative food values. The expense of the total ration, including meat, bread, potatoes, vegetables, cheese, sugar and coffee, averages about 80 cents less per week than the old ration; it averages 2,794 calories to the former 3,013. It is expressly stated throughout the article that this ration applies only to the territorial troops, that is, those not at the front firing line.

49. **The Navy Ration.**—Belli gives the details for the navy, saying that the calories total 3,036. This includes 170 calories from the wine provided the men. Rho has proposed to credit the men not taking wine with the money it would cost, but the proposal met with administrative objections. The details of the navy ration are left in large measure to the discretion of the commanders of the vessels to permit variety.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 9, XXXVIII, No. 72, pp. 977-991

51 *War Injuries of the Eyes. T. di Giuseppe.—p. 977.

51. **War Injuries of the Eyes.**—Di Giuseppe refers to the fact that wounds of the head are exceptionally numerous in this war, and the eyes are proportionately often injured. In the fighting among the mountains, the scraps of stone broken off and propelled by the explosions increase the danger for the eyes. Another danger to which the soldiers' eyes are exposed is from the trachoma and other eye affections of the men taken prisoners, and from such infections in the trenches just vacated by the enemy. The toxic gases which induce much lacrimation are far less dangerous for the eyes than the usual asphyxiating gases. The latter when they act on the eye long enough deprive the cornea of sensibility and it looks dull but otherwise seems normal for a time. If the injury is severe, small foci of necrosis then develop and, with atrocious pain in the brow, back of the neck and the temples, the eye slowly dies, the eyeball becoming completely atrophied. In his experience, 16 per cent. of the war injuries of the eyes were from machine guns or shrapnel, 50 per cent. from flying scraps of stone, 5 per cent. from trachoma, and 25 per cent. from asphyxiating gases.

Pediatria, Naples

September, XXV, No. 9, pp. 513-576

52 *The Sugar Content of the Blood at Birth. S. Cannata.—p. 513.
53 *Transient Paralysis of the Arm, with Pain, in Young Children. V. Conterno.—p. 517.
54 *The Value of Bacteriolytic Antibodies in the Cure of Typhoid. A. Zironi.—p. 527.
55 Vaccine Therapy in Acute Infectious Disturbances in Infants and Young Children. P. Ceppellini.—p. 533. To be continued.

52. **The Sugar Content of the Blood at Birth.**—Cannata determined the sugar content of the blood in fourteen newly born infants and in eight from 2 to 5 days old. The method applied was the Lewis-Benedict-Bass technic. The findings ranged from 0.074 per cent. in the first group to a maximum of 0.92 per cent. in the others, fasting, and a maximum of 0.114 two hours after feeding.

53. **Transient Painful Paralysis of the Arm in Young Children.**—Conterno comments on the neglect by the text books of this common trouble in young children. In Broca's compilation of 208 cases, half were one to 3 years old and the others up to 5 years, but girls were affected twice as often as boys. The usual cause is that the child stumbles as it is walking with an older person holding its hand, and the arm is jerked as the adult seeks to keep it from falling. The symptoms are those of a subluxation of the head of the radius, and all trouble vanishes with reduction of the luxation, as a rule. In a few cases, however, merely distracting the child's attention answered the purpose. The child was held close in its mother's arms, the sound arm held against her so that the child was unable to use it while the paralyzed arm was left free, near a tempting toy. The mother and

physician pay no attention to the child, and it soon reaches out its one available hand to seize the toy, and the paralysis is conquered. When this fails, he proceeds to reduction of the subluxation. The trouble is a painful but benign traumatic injury of the head of the radius or memory of such.

54. **Bactericidal Properties of Typhoid Serum.**—Zironi tabulates the findings in about twenty-five cases to demonstrate that the serum in typhoid and paratyphoid has marked bactericidal power for bacilli of both the typhoid and the two paratyphoid groups. This power is marked in vitro in a 1:10 dilution, but is still evident even at 1:50, even when the serum is obtained while the bacilli are still circulating in the blood. He theorizes to explain this paradox, suggesting that bacilli in artificial cultures are frailer than those in the body.

Rivista di Clinica Pediatrica, Florence

September, XV, No. 9, pp. 449-504

56 *The Avoidable Infant Mortality in Italy. G. B. Allaria.—p. 449.
57 *The Urine Reaction in Infants. M. Flamini.—p. 462.
58 *School Anemia. C. Bracci.—p. 469.

56. **Avoidable Infant Mortality.**—Allaria commences this study of the sanitary prophylaxis for early childhood with a description of Mercuriale's "De Morbis puerorum." It was published at the most brilliant period of the Renaissance, the days of da Vinci and Michelangelo, but the writer had to devote the preliminary chapter to an excuse and justification for his temerity in suggesting that children should be given medical attention and care as well as adults. As late as 1905, G. Mya published a scathing arraignment of society for its disregard of the high infant death rate in Italy. Allaria gives statistics in regard to the infant birth and death rates in various European countries, and proposes various measures for infant welfare work.

57. **The Reaction of Infants' Urine.**—Flamini tabulates the metabolic findings in fifteen breast fed and fifteen bottle fed infants, with the urine reaction and the aspect of the stools. Also of a number of the bottle fed being given calcium lactate. In the bottle fed infants and in the breast fed with bowel trouble, the urine was always strongly acid; the acid phosphates content was always large. In the healthy breast fed the acidity of the urine ranged from 0.1 to 0.6, but in the artificially fed the range was from 1.25 to 4 in the healthy, with two exceptions in which it was 0.6. In some of the bottle fed with bowel trouble it reached 4.5 and 5.8. The phosphate content was much higher in the bottle fed. The bottle fed given calcium lactate showed marked reduction of the acidity afterward, the acidity dropping from 2 to 1.3; from 3.5 to 0.9, or from 4 to 1.4. The infants took without disturbance up to 0.5 gm. of the calcium lactate at each feeding, and Flamini thinks that it might be useful to give calcium lactate as a routine measure to bottle fed babies to enable them to tolerate and utilize better the artificial food.

58. **School Anemia.**—Bracci calls this "scholastic anergy," as anemia is not constant and is usually secondary to the changes induced in the metabolism by the lack of energy. The chief change in the blood is the reduction of the amounts of the two basophile substances of the red corpuscles. The whole trouble is probably some upset in the balance of the glands with an internal secretion. Iron does not act as well as usual in anemia. Arsenic gives better results in these cases, and phosphorus is also useful, and their combination.

Prensa Medica Argentina, Buenos Aires

August 30, IV, No. 9, pp. 105-116

59 Angioma with Cavities in the Tendon of the External Oblique Muscle. R. A. Marotta and A. F. Landivar.—p. 107.
60 *Normal Beef Serum in Treatment of Human Anthrax. III, J. Penna, J. B. Cuenca and R. Kraus.—p. 108. Continuation.
61 Error from Derived Electric Currents in Experimental Research on Frogs with Curare. J. Guglielmetti.—p. 110.

60. **Normal Beef Serum in Treatment of Anthrax.**—In this instalment of their third communication on this subject, Kraus and Penna give illustrated descriptions of five typical cases from their later series. The first instalment was summarized in these columns recently, page 1388. There was also editorial comment, page 1350.

Semana Medica, Buenos Aires

July 19, XXIV, No. 29, pp. 57-84

62 *Surgical Treatment of Ankylosis. E. M. Olivieri.—p. 57.
63 *Nationalization of the Asistencia Publica. L. J. Facio.—p. 68.
64 *Minor Technical Points in Laboratory Differential Diagnosis. M. Beatti.—p. 69.
65 Oysters. P. Brocca.—p. 72.

62. **Operative Treatment of Ankylosis.**—In this part of Olivieri's study of this subject, he reviews the history, and describes four cases in which he restored the functional use of the elbow by resection. He warns that we must not hesitate to resect widely in these cases, from 5 to 8 cm. of bone as may be needed, especially in the tuberculous cases. Vallas has shown that a kind of new joint may form after simple resection. He had occasion to compare the block of bone cut out at the resection with the necropsy findings in the elbow several years later. The epicondyle and epitrochlea had grown again, and the muscles had regenerated with their points of attachment while the articulating ends of the bones had become covered with a compact tissue resembling cartilage; the capsule had reformed completely, and the synovialis was represented by a series of serous cavities which probably in time would have fused into a single cavity. The resulting nearthrosis was an excellent example of what can be accomplished in the elbow by resection alone. But good results are obtained more promptly and more constantly by opening up the joint, resecting conservatively, and interposing a pad of tissue. This, he declares, is the greatest progress realized to date in the treatment of ankylosis.

63. **The Nationalization of the Asistencia Publica.**—In Paris and Buenos Aires the entire system of hospitals, asylums, municipal lodging houses and other agencies for caring for the sick poor and helpless are under one management, called the Public Assistance. It has been found to work so well, by preventing duplication of effort and gaining the advantages of organization, that E. R. Coni, the leading hygienist of Argentina recently proposed a plan to unify in the same way the public hospitals and asylums throughout the whole country on the same single management system. Facio here endorses the project most enthusiastically, and enumerates a number of additional advantages beyond those to which Coni called attention. The plan is to have the national public health system quite distinct, as at present. This department is for prophylaxis of sickness; the Asistencia Publica is for care of the sick. With a nationalized Asistencia Publica it will be possible to have accessible hospitals and asylums available for each region. One point on which Coni insisted especially was that the national leper asylum should not be placed on a comparatively inaccessible island, as at present planned. If the separation from home has to be absolute, families will not disclose the presence of leprosy. It is much better to induce them to disclose it early by having the leprosorium within a reachable distance and visiting permitted under restrictions.

Siglo Medico, Madrid

August 18, LXIV, No. 3323, pp. 605-624

66 *Roentgenography with Kidney Stones. A. P. Martin.—p. 606.
67 Treatment of Lichen Planus. E. de Oyarzabal.—p. 609.
68 Simple Melancholia. A. S. Herrero.—p. 610.

August 25, No. 3324, pp. 625-644

69 Visit to the Crocker Cancer Institute at New York. C. Fernandez-Arroyo.—p. 626.
70 Depilation. B. N. Canovas.—p. 628.
71 *Still Unsolved Problems in Regard to Leprosy. R. Kraus.—p. 631. Commenced in No. 3323, p. 612.
72 Present Status of Our Knowledge of Puerperal Infections. D. S. Recasens.—p. 640. Commenced in No. 3323, p. 618.

66. **Kidney Calculi and Radiography.**—Martin reports a few cases to show the danger of relying too implicitly on the roentgen findings when they fail to disclose anything suggesting calculi although the clinical picture indicates something of the kind. Imperfections in the photographic plate may simulate calculi, or gravel may clump and simulate a solid stone. In one such case the pyelotomy revealed only one minute grain which he extracted. The fifth day after the operation a large number of other grains were voided in the urine. The pyelotomy had thus been entirely superfluous as

the "sand" would have been washed out in time, while the fact that the other grains were not found at the pyelotomy shows the inadequacy of opening the pelvis alone for exploring the kidney. Roentgenography showed 4 grains still left in the kidney, and three were still there when examined several months later. Martin then had the young man drink copiously of diuretic beverages and exercise vigorously, jumping, walking on his hands and other gymnastic exercises. This dislodged the minute stones and one by one they were expelled, clearing the urinary apparatus of all suspicious appearances. In a third case, pain and hematuria returned after removal of a calculus by nephrotomy, and a second operation was done. The nerve was then released from cicatricial adhesions and also the kidney. Two hardened glands were found close to the renal pelvis, explaining the roentgen shadows at this point. This second operation put an end to all disturbances.

71. **Leprosy.**—Kraus thinks that there probably is more than one germ responsible for leprosy, as for dysentery. The findings with experimental research have been conflicting, he says. In fact, none of the cultures isolated to date can be regarded as the true culture of leprosy. To date also no specific allergic reactions have been conclusively demonstrated in leprosy. It is possible, however, that the tuberculin tests or something of the kind in the incipient stages might prove positive, and etiologic vaccination give successful results. He adds that Stefanski's discovery of lepra in rats may have something to do with its transmission. Fernandez' research in Argentina has demonstrated the existence of lepra in rats. Kraus cites the experiences in Norway in regard to isolation of the leper in his own house, avoiding all contact with the healthy, as having given the most satisfactory results. The reduction in the number of cases has been so marked that this example can be followed with confidence in other countries. In South America, on the other hand, leprosy has spread widely in recent years as there has been no systematic prophylaxis against it. He urges concerted national and international action in prophylaxis of leprosy, especially in South America.

Acta Scholae Medicinalis Univ. Imp. in Kioto

September 10, II, No. 1, pp. 1-113. German Edition

73 *Primary Diseases of Lymphatic Apparatus. H. Nakamura.—p. 1.
74 *Action on Vessels of the Elements of the Blood. (Die Kohlensäure ist der dissimilatorische Regulator für die Zirkulation der tätigen Organe.) N. Yamamoto.—p. 57.
75 *Lesions of the Tibial Tubercle in Adolescents. (Zur Osgood-Schlatterschen Krankheit.) K. Kawamura.—p. 99.

73. **Primary Disease of the Lymphatic Apparatus.**—Nakamura refers particularly to lymphosarcoma. He comments on the diversity of names that have been applied to Hodgkin's disease, listing nearly half a page of them. He also lists eight pages of bibliography on the subject, and reports in detail six cases from the surgical service at Kioto. He also tabulates the blood findings at different periods in four cases of lymphatic leukemia or pseudoleukemia, and suggests a classification for the primary affections of the lymphatic apparatus which will do away with much confusion, discarding completely the term lymphosarcoma. We then would have three groups: 1, the cases with hyperplasia of the lymphocyte cells. (This group includes lymphatic leukemia and pseudoleukemia); 2, those with hyperplasia of the reticulo-endothelium cells (including Hodgkin's disease, tuberculosis and syphilis), and 3, true tumors. In conclusion he reports a case which seemed to be a transitional form between groups 1 and 2. A colored plate shows the blood findings typical of each group. The discovery of a short, antiformin-fast, thick bacillus in the tumors, lymph glands and spleen in three of four cases of lymphatic leukemia and pseudoleukemia convinced him that these diseases are of infectious nature, not malignant tumors. The coordinated hyperplasia of lymphoid tissues in different organs stamps leukemia as a systemic affection. The leukemic blood changes are the result of the action of some noxious substance circulating in the blood. This starts pathologic proliferation of lymphocytes in lymph glands and spleen. The lymphocytes pile up in the lymph glands and spleen, and stretch them to actual tumors. This is pseudoleukemia, myeloma and Mikulicz' disease. Later, the walls of the vessels, especially the veins, become affected and the lymphocytes get swept out into the blood stream. This is lymphatic leukemia and chloroma.

74. **Action of Elements of the Blood on the Vessels.**—Yamamoto reviews the history of research in this line, and describes much personal work, especially on the rabbit ear. He charts the findings in regard to the vessel-constricting action of the different constituents of the blood, the serum and extracts of blood corpuscles, and discusses the mechanism of the vasodilating influence he found with them. The carbon dioxid in the blood in tests with serum or with extract of blood corpuscles exerted a very intensive vasodilating action. Oxygen and nitrogen did not display any appreciable action on the vessels. Yamamoto concludes from the findings related in detail that carbon dioxid plays an important part as a dissimilation regulator of the circulation in functioning organs. This assumption throws light on the benefit from carbonated baths in cases of disturbance in the circulation with high blood pressure. The carbon dioxid is probably absorbed by the skin, and exerts its influence on the vessels in and close to the skin, dilating them and thus relieving the heart. The waste gaseous product of metabolism in an actively functioning organ, namely, the carbon dioxid, by its irritation of the vasodilators ensures an extra supply of blood at once to the organ.

75. **Lesions of the Tibial Tubercle in Adolescents.**—Kawamura's profusely illustrated article analyzes nine cases of Osgood-Schlatter's disease. The patients were all between 12 and 17, and all but one were boys. In four cases the left leg alone was involved, and in five, both legs. The region of the anterior superior epiphysis of the tibia is peculiarly vulnerable during this stage of rapid growth, and any direct or indirect trauma, a single fall or repeated mild injuries, is liable to lead to fracture of the epiphyseal beak of the tibia or tearing loose of the cartilage. The injury may not cast a shadow on roentgenoscopy, and conservative treatment usually ensures a complete cure. If not, and the disturbances persist, excision may be required. This put an end to all the trouble in the first case reported, the lad of 17 being dismissed in twelve days entirely cured.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 11, II, No. 6, pp. 441-532

76 *Unrestricted Practice of Medicine. G. van Rijnberk.—p. 443.
77 The Psychanalysis Method. J. H. van der Hoop.—p. 458.
78 Physiologic Titration of Digitalis Preparations on Warmblooded Animal (Cat). G. den Besten and C. de L. van Wijngaarden.—p. 479.
79 *Hemorrhagic Meningitis from Infection with Anthrax Bacillus. R. de J. de Jong.—p. 484.

76. **Unrestricted Practice of Medicine.**—Van Rijnberk relates that an appeal signed by five dozen persons "who know enough to write their names" was presented to the government asking removal of restrictions to the practice of medicine. The government has appointed two committees to study the subject, one comprising ten of the leading physicians of the country, and the other, some lawyers and the men who have long been protesting against the "physicians' monopoly." The official directions given this second committee are "to investigate what legal restrictions to the practice of medicine should be enforced if the license to practice is not to depend on the possession of a certificate showing the successful passing of the state examination." The directions for the medical committee are "To investigate the expediency (*doeltreffendheid*) of the methods of treatment practiced by the nonlegally qualified practitioners of medicine and the results attained by them." Van Rijnberk comments that the task of the first named committee is to prove that in order to cure disease it is not necessary to know what disease is, nor be able to recognize it, nor know its cause, its course or its outcome, nor what can be done for it; in short, that in order to practice the art of healing, ignorance is trumps. The task given the other committee is ambiguously worded as the term "nonlegally qualified practitioners of medicine" might mean physicians legally qualified in other countries but not having conformed to the requirements of the Nether-

lands laws. The term "practitioners of medicine" (*beoefenaren der geneeskunst*) should not be applied to the quacks who are responsible for the agitation. The medical committee has an interesting field for research before it, he continues. This committee includes a physiologist, a pharmacologist, four neurologists, one internist, one ophthalmologist and an obstetrician, but there is no venereologist and no ear man, although these are the chosen fields of the quacks. He comments on the vast field for their research, remarking in conclusion that the physicians of the Netherlands anticipate their report with much interest and concern.

79. **Anthrax Bacillus Meningitis.**—At the necropsy of the young soldier who had succumbed to fulminating hemorrhagic meningitis, the anthrax bacillus was found in the meninges and spinal fluid and in internal organs. He had helped to slaughter a cow with anthrax not long before. The intense cyanosis, early unconsciousness and speedy death were special features of the case. The first symptoms, pain in right arm and shoulder were noticed ten days after the slaughtering of the cow, and a pustule on the arm and the meningeal symptoms developed the fourteenth, with death the fifteenth day.

Hospitalstidende, Copenhagen

August 15, LX, No. 33, pp. 789-812

80 *Appendicitis and Oxyuriasis. S. Matthiasson.—p. 789.

80. **Helminths and Appendicitis.**—Matthiasson states that he found a living oxyuris in the appendix in three adult women. In each case the appendicitis had been mild and restricted to the interior of the appendix, and all had complained of boring pains in the right iliac fossa for several weeks or months after the first acute attack. The long persistence of these pains, with the comparatively slight pathologic changes in the appendix, impressed him as possibly to be ascribed to the helminths. He cites certain authorities to show that helminths are capable of serving as a possible factor in the development of appendicitis. This might explain the occurrence of appendicitis in several members of one family. In looking over the literature he has been astonished to see that surgeons pay so little heed to the oxyuris as a factor in recurrence of appendicitis. He urges collection of statistics in regard to the prevalence of the oxyuris in cases of appendicitis, and especially in recurrences, and whether expulsion of the helminths aids in warding off recurrence, adding that possibly the oxyuris seeks refuge in the appendix during treatment for worms and thus escapes the action of the drug. He has found naphthalin more effectual than santonin in expelling the oxyuris.

Hygiea, Stockholm

August 16, LXXIX, No. 15, pp. 737-800

81 *Cholesterol in Pleural Effusion. P. Arnell.—p. 737.
82 *Esophageal Diverticulum plus Dilatation. J. Leffler.—p. 748.

81. **Cholesterol in Pleural Effusion.**—Arnell found cholesterol crystals numerous in the effusion in the right pleura in a man of 25 with minor signs of pulmonary tuberculosis. The pleurisy had a chronic tendency but, notwithstanding the persistence and recurrence of the effusion through six years, the general health kept good and the cholesterol crystals did not seem to cause much subjective symptoms. The crystals glistened in the effusion, as there was up to 0.41 per cent. cholesterol. The albumin content reached 5.23 per cent. The fluid was sterile. The effusion had developed first after a spontaneous pneumothorax and the effusion had evidently been encapsulated by the pleura.

82. **Esophageal Diverticulum.**—In the case described by Leffler, a woman of 34 had extreme idiopathic dilatation of the esophagus and at the same time a pulsion diverticulum on a level with the junction of the second rib with the sternum. Recurring bronchitis with lassitude suggested pulmonary tuberculosis, and the esophageal anomalies were a casual discovery on roentgenoscopy, as the symptoms from the stenosis had improved so much during the years that they had been disregarded. The large diverticulum had given percussion findings simulating those of a tuberculous cavity, but there was no reaction to tuberculin.

Norsk Magazin for Lægevidenskaben, Christiania

September, LXXVIII, No. 9, pp. 1017-1128 and Supplement

83 *Surgical Treatment of Wandering Kidney. C. Johannessen.—p. 1017.
84 *Nodular Arteritis. (Periarteritis nodosa.) F. Harbitz.—p. 1051.
85 *Management of Post-Partum Hemorrhage. (Om ledelse av efterbyrdstiden.) K. Brandt.—p. 1079.
86 *The Physiology of Endogenous Uric Acid. H. F. Høst. Supplement.

83. **Wandering Kidney.**—Johannessen discusses the various drawbacks of the different technics in vogue for operative correction of wandering kidney. He regards Rovsing's latest method as superior to all others. Rovsing has reported 85 per cent. cured and 9.3 per cent. improved in 107 cases without complications and a corresponding 50 and 25 per cent. in 64 cases with complications. Johannessen applied his technic in 11 cases, all in women, and all involving the right kidney. In 5 the kidney had become displaced after a childbirth. Of the 7 uncomplicated cases, 6 were cured and the seventh materially improved. Of the 4 with gastroptosis or other complications, all were improved and 2 quite cured. His experience confirmed Rovsing's statements as to the influence of wandering kidney on menstruation. He has repeatedly found that a bandage to support the wandering kidney put an end to dysmenorrhea. Kümmel has reported a case in which, to relieve the pains, both ovaries and finally the uterus were removed, but the pains persisted until the sagging kidney was restored to place. It is important to give some drug to maintain peristalsis after the operation, as otherwise symptoms suggesting ileus may develop. The kidney should always be examined for calculi, cysts and a neoplasm before fastening it in place, and the ureter tested.

84. **Periarteritis Nodosa.**—Harbitz reports the full details with necropsy of a typical case of this affection, saying that he knows to date of only thirty-five cases on record. The intima and media of the medium and smaller arteries were affected with a chronic proliferation of connective tissue and hyalin, associated with regions of acute involvement of the adventitia. In one of the illustrations the finer arteries on the heart look as if strung with beads. The findings in his case suggest polyarteritis as a more correct designation than periarteritis. The onset is generally acute, in the midst of health in the prime of life, although cases have been known in children and the elderly. It begins with fever, not high but irregular, and pains in the muscles and legs, sometimes in the joints. Then there is fleeting edema at various points, especially in the face. The diagnosis wavers between polyneuritis, polymyositis and trichinosis. His patient was a man of 22 and polyneuritis was the clinical diagnosis. Lassitude and weakness became extreme, the pulse small, irregular and fast at times, modified more than corresponded to the fever. The pains increased and symptoms developed on the part of the kidneys, intestinal tract and heart, and death occurred within the usual period of from two to four weeks. This is the nerve or muscle type of nodular arteritis. In the intestinal type, vomiting, diarrhea and collapse phenomena dominate the clinical picture, suggesting peritonitis. The necropsy findings showing the changes and obstruction in the arteries, and the resulting softening and necrosis readily explain the clinical picture. In some cases the main disturbances are in the kidneys from the start, entailing early fatal uremia. The brain and respiratory apparatus have been mostly spared in the cases to date. The nodular arteries may be restricted to a single organ and the nodules may retrogress; Harbitz has seen findings in cadavers and in animals which prove this. He has found gray nodules along the arteries in the spleen in elderly cadavers, which probably were relics of nodose arteritis. An infectious origin seems certain, but no positive bacteriologic findings have been reported yet, and nothing suggesting syphilis.

85. **Postpartum Hemorrhages.**—Brandt is convinced that when bleeding keeps up after expulsion of the placenta, this is caused by retention of scraps of adherent membranes or clots; these cannot be expelled by Credé's expression method. This is useful to separate the placenta and aid in its expulsion, but it only maltreats the uterus unnecessarily when it is a question of removing scraps or clots. He removes them

by introducing his hand into the uterus. This was done in 3.6 per cent. of a recent series of 1,700 maternity cases, and none of the women died although 34.4 per cent. were febrile cases. The hemorrhage was always arrested before it became serious. Bimanual compression is a valuable means to arrest the hemorrhage with atony of the uterus after delivery. Compression is applied from without with one hand curving over the uterus while the other hand, in a pointed fist shape, the thumb extended straight on its axis, and the fingers clenched to point the fist the whole length of the thumb—this hand is worked into the vagina and pushed against the middle of the uterus, forward of the cervix. The uterus is thus pushed in against the hand outside until the walls are squeezed together, the axis of the uterus bent at a right angle or more. This pressure can be kept up for fifteen or thirty minutes uninterruptedly. This technic is taught in his service. But as he is convinced that the hemorrhage is always due to retention of clots or scraps of placenta or membranes, the uterus is cleared out first, and this invariably stopped the hemorrhage so that he never had occasion to apply this bimanual compression in the 1,700 cases. Another point on which he insists is that the urine must be drawn to empty the bladder at once after delivery. To ensure against infection he has the bladder rinsed out with a 1:500 silver nitrate solution immediately after the catheterization. In all his experience he has never encountered but two or three cases in which no cause could be found to explain the postpartum hemorrhage except atony of the uterus. In such a case he advises the bimanual compression and a subcutaneous injection of ergot. The effect is felt in about eight minutes. No time is lost and there can be no further bleeding with the walls squeezed together, while the ergot keeps the uterus walls contracted after the bimanual compression is stopped. Clots and adherent scraps of membrane cannot be evacuated with sponges or cotton held with forceps, and rubber gloves cannot be used in removing adherent scraps of membranes.

86. **The Endogenous Uric Acid.**—Høst's monograph of 132 pages is accompanied by eight pages of bibliographic references with full titles. His research was done on two healthy persons and fifteen convalescents, all free from any trace of uric acid arthritis. The metabolic findings are tabulated over long periods. They show that the endogenous uric acid content of the blood and urine is liable to wide variations from day to day in some, while others produce and eliminate a fairly constant individual amount.

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87. **Thymus Dwarf Growth.**—Krabbe remarks that with the development of endocrinology, the study of dwarf growth has become more than a mere scientific curiosity. Symptoms of rachitis and stunting of the growth have followed removal of the thymus in animals, and in a case of pronounced dwarf growth, which he describes in detail, a similar combination suggests that the thymus was responsible for the dwarfism. The patient is a young woman of a healthy family. She weighs 28.4 kg. but is only 111.25 cm. tall, that is, weighing 62 pounds for a height of about 44 inches. She presents an almost normal appearance otherwise except for the scanty growth of hair and the elderly aspect of the face. There are no signs or symptoms suggesting disturbance in the functioning of the thyroid or parathyroids, pituitary, suprarenals, ovaries or pancreas. The dwarf growth in this case seemed to be the result of premature growing together at the epiphyseal line. The legs curve as a relic of rachitis, and he suggests that possibly there may be forms of rachitis for which thymus insufficiency is responsible. This has already been suggested for the combination of rachitis, dwarf growth and idiocy, but in this case the patient is intelligent.

88. **Suffocation in Pneumonia from Falling Back of the Root of the Tongue.**—In the case described by Jørgensen the young man was doing well in mild pneumonia, the pulse and temperature good, when suddenly he was found suffocating. No edema, paralysis or tumor could be discovered. The symptoms suggested those observed under general anesthesia when the root of the tongue relaxes under the anesthetic, and treatment applied on this diagnosis proved promptly successful. At first the lower jaw was kept pulled forward but later, turning the man on his right side, with the head bent over, seemed to correct the tendency for the tongue to slip back. It is possible that this cause for suffocation may be more common than surmised. In this case the nervous system may have been affected by the pneumonia toxins; we know that the knee-jerk is often abolished during pneumonia. The patient's habit of sleeping with his mouth open may also have favored the trouble, and there is a further possible factor in the drug, optochin, which had been given. In any event, the case warns that with suffocation under any circumstances, the possibility of the dropping back of the root of the tongue, as with general anesthesia, must not be overlooked. In this case the suffocation came on again and again as soon as the exhausted man dropped to sleep, and the Heiberg-Esmarch method of drawing forward the mandible had to be kept up regularly or the suffocation soon came on again, until he was turned to lie on his side with the head bent over.

89. **Occult Blood in the Stools with Pulmonary Tuberculosis.**—Lange examined the stools for occult blood on four occasions, with one day intervals, in 37 cases of pulmonary tuberculosis in the first stage; in 25 in the second stage, and 64 in the third stage—only one in the first group showing any signs of tuberculosis of the bowel, three in the second group, and ten in the third. He also applied the same tests to 34 with bowel tuberculosis as evidenced by clinical or postmortem findings. The findings were positive in all but 3 in this group, and in these the necropsy failed to confirm the tuberculous nature of the bowel trouble. Among the practical results of this study of 163 cases is the warning that tuberculous ulcerations in the intestines may long exist without giving rise to bleeding. Also that tuberculous intestinal lesions are more common with pulmonary tuberculosis—even in the total absence of all signs of the bowel involvement—than would be supposed from the clinical symptoms. The occult blood findings were negative in all the 37 in the first stage, after the effect of blood-containing food had worn off; in the 25 in the second stage, the findings were positive in three. In the 64 in the third stage, four of the ten showing signs of intestinal tuberculosis gave a positive benzidin reaction. Of the eleven giving a positive reaction, four also showed signs of intestinal tuberculosis.

90. **Crutches.**—Abrahamsen says that the most striking sight at the arrival of a shipload of disabled soldiers is the large proportion of those using crutches. The men cling to the crutches as their only friend, and let the wounded leg hang passively, not seeking to utilize it but allowing it to fall a prey to ankylosis and atrophy and disturbances of various kinds. Every day that the crutches are used makes restoration of function harder. He gives a few examples of contracture, etc., which he thinks might easily have been avoided if it had not been for the crutches. The muscles become degenerated early and the man is left a cripple for life. Crutch paralysis from the pressure of the crutch is another avoidable evil. It is not common, but he has had one case, which, however, had a favorable outcome in time. Out of 350 men at the Hald hospital, arriving on crutches, he compelled 100 to discard them at once. Only two or three in this group really had needed them, but all had been given the crutches as they first left the bed. He denounces this practice unreservedly, saying that with operations, bandages and a cane, the men can be brought to their feet, and they thus utilize all the walking powers left them. In the nearly four years since he has been assistant in Slomann's orthopedic service, he has never seen crutches supplied even one patient, and he declares they are seldom needed in the military hospitals.